Borough of Cheltenham.

ANNUAL REPORT

OF THE

SANITARY ◆ CONDITION

ETC., ETC., OF THE

BOROUGH OF CHELTENHAM,

FOR THE YEAR 1907,

BY

J. H. GARRETT, M.D., D.P.H.,

MEDICAL OFFICER OF HEALTH.

Together with the Report of the Chief Sanitary Inspector,

ALSO THE

Annual Meteorological Report by Mr. A. C. Saxby.

"Salus Populi Suprema Lex."

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BOROUGH OF CHELTENHAM.

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(Chairman of the Committee),

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Mr. Councillor W. G. EARENGEY.

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Mr. Councillor J. STEWART.

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Assistant Inspectors—
E. J. MANDERS. F. HUDSON. C. EMERSON.

Clerk—F. R. JEFFORD.

Medical Officer of Health—J. H. GARRETT, M.D.

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To the Mayor and Members of the Sanitary Authority of the Borough of Cheltenham.

GENTLEMEN,—

I beg leave to present my sixteenth Annual Report, namely, that for the year 1907.

The record contained in the Report is one of continued activity in all the routine duties of the Department, and I would call your particular attention to the bulk of this work as compared to the staff, and the evidence in this Report of the growth of public-health work generally by additions resulting from the passing of new Acts of Parliament, or the more earnest application to requirements of longer standing. But besides what is briefly recorded in these annual reports, there are of course numerous matters of detail in the conduct of a public-health department which take up much time and interest and which are bound to be attended to independently of yourselves, being matters of professional nature, which the officer is placed in his post to attend to, but in which the members of the governing council can have no part, nor even any knowledge. It is indeed a fact that the greater part of the Council are never in contact with the public-health work, or the Public Health Department, and know nothing of it beyond the meagre information to be gleaned from the printed minutes prepared for use at the monthly Council meetings. Even the limited number of members who sit upon the Public Health Committee usually require a long connection with the matters brought before that Committee before they become conversant with the full importance and responsibility attaching to the work of the officer. I venture to refer to these facts because, as you are aware, a Committee of the Corporation, which included only one member of the Public Health Committee, during last year issued a unique recommendation that the staff of the Health Department and the salary of the Medical Officer of Health should be forthwith reduced.

I have the honour to be, Gentlemen,

Yours faithfully,

J. H. GARRETT,

Medical Officer of Health.

February 17th, 1908.

VITAL STATISTICS.

SUMMARY.

		Acres.
Acres of Municipal Borough		4,726
Rateable Value		£311,302
Population at middle of last year		51,000
Population in 1901 Census		49,439
Persons per Acre in the Borough		10·6
Average number of persons per house 1901 Census		4·77
Death Rate, 1907	Per Thousand Living Inhabitants.	13·8
Average Death-Rate for previous ten years	,, ,,	14·7
Zymotic Death-Rate for 1907	,, ,,	·60
Average Zymotic Death-Rate for previous ten years	,, ,,	·96
Birth-Rate, 1907	,, ,,	17·2
Average Birth-Rate for previous ten years	,, ,,	20·2
Infant Death-Rate (under one year old) per thousand Births, 1907		95
Infant Death-Rate Average for previous ten years per Thousand Births		124

The Borough of Cheltenham.

The characteristics of Cheltenham are those of an inland residential town, and there is no town in England that exceeds it in general attractions. It is a favourite place of settlement for officers retiring from the military and civil services, and also more especially for families seeking educational facilities of a leading order for sons and daughters. It is, in fact, at the present day chiefly in connection with its colleges that Cheltenham is renowned, though its original claim to fame lay in the possession of natural medicinal waters the use of which has lately considerably revived.

Geology and Topography : The escarpment of the oolitic Cotswolds lies immediately behind the town, forming a fairly straight hill-line running through Gloucestershire in a direction from South-West to North-East. The lias clay of the nearer part of the Severn valley which stretches away in front of Cheltenham laps up to a considerable elevation upon the breast of the Cotswolds, its depressions being filled with sand and gravel drift, and Cheltenham is built upon the sloping surface of this latter formation, about half its houses being on sand and half on clay. The surrounding country is diversified from the fact of its lying at the junction of the oolitic and lias systems, the hill country contrasting in a marked way with the vale country, both being very agreeable after their own styles. The valley is beautifully green and well wooded, whilst beyond the top of the confining hills is a stretch of country elevated and comparatively bare and dry upon which arise the main feeders of the river Thames, and which slope gradually away towards that river. The town occupies a good site for drainage, the natural courses for its surface waters consisting of several small streams, of which the Chelt and the Hatherley Brook are the chief. These two flow into the river Severn at a distance of seven or eight miles from Cheltenham. The gradients in the town are all gentle, there being no steep or difficult roads to impede locomotion.

ALTITUDE AND CLIMATE : The altitude of the town in its centre parts is about 200 feet above mean sea level, and its best residential parts are a little higher, as there is a gentle and continuous rise by every road that runs toward the hills. The Cotswolds in the near neighbourhood rise to their maximum height of about 1,000 feet. The meteorological details of the climate will be found in Mr. Saxby's report which is appended. Generally speaking the climate is mild. There is a decided difference between that of the hill country and that of the lower part in which Cheltenham lies. The climate of the town suits many people particularly well, especially those of advanced years, and certain invalids, who may require an unirritating and somewhat sedative climatic effect, are well suited in Cheltenham. The small amount of illness that occurs in our very numerous college boarding houses and boarding schools also proves that the place suits young people. No special liability to any particular disease is indicated by the death returns.

THE POPULATION : Although the chief streets and charming avenues and villas of Cheltenham correctly bespeak the presence of a large number of inhabitants with means that enable them to live in surroundings best calculated to preserve life, there are also quarters less well known with a large aggregate poor class population, which from the point of view of vital statistics puts Cheltenham at a disadvantage as compared to certain other towns, whose origin is more recent, and whose population is more confined to moneyed residents and pleasure seekers. Scarcely a hundred years have elapsed since Cheltenham grew by a quick leap from a village to a town of considerable size, but though this town has no claim to an antique origin, its age is sufficient to distinguish it from those very modern places that have seen their main development during the last five-and-twenty years, or are still rapidly increasing. For some decades past the increase of Cheltenham has been slow ; during a considerable number of years there was no increase, but building operations have been again resumed upon some scale in the last ten years. At the census of 1901 we numbered 49,439, and all round considerations denote that our present population is quite 51,000. By the calculation of the Registrar General, based upon the rate of increase in the previous decennium, the population is given as 51,202 at the middle of last year.

Births and the Birth-Rate : The births registered in Cheltenham last year numbered 881. As is usual, the number of male children born exceeded the number of females, there being 449 boys and 432 girls. The total of 881 gives a birth-rate of 17·2. This is the lowest birth-rate ever recorded, and is a sudden drop of 3 per thousand below the previous ten years average, and 2 below the low record of the previous year. The birth-rate of the whole country has been decreasing gradually for many years and in some places it is now so nearly approximating to the death-rate, that there seems a real likelihood of the natural increase of the population coming to an end. I have commented on previous occasions upon the regrettable fact that the greater proportion by far of children born in Cheltenham come of the poorest class, and not of those who are mentally and physically best developed. For some time past there has been a stringent limitation of the family practised amongst the professional and upper middle classes, and but for a constant recruiting from below, the class of people that inhabits our best houses would certainly die out, but now we seem to be coming to a period when the loss to the upper classes will cease to be made good by the fecundity of the lower classes, and we may arrive at a stagnation or even at a decrease in the numbers of our race, this is not a satisfying contemplation. It suggests how easily calculations made upon past occurrences may be upset by some unlooked for change, such as that of failure to maintain the rate of present increase, or even failure to maintain present numbers. The prominence of the English speaking race in future history depends largely upon increase, but viewing our limited and diminishing births who can dare to affirm that the increase will continue. The causes of the diminishing birth-rate are doubtless various, the determination on the part of parents not to encumber themselves with children, being but one cause though perhaps a chief one. The later average age at marriage of late to be noticed must have its effect, and it may be, and the course of the statistics seem to indicate this, that there are periods in the current existence of mankind when the powers of increase are greater or less as the case may be, but what such variations depend upon may be too complicated a thing to be solved in the present state of knowledge. Mankind has not sufficient information to rule its own destiny and if individuals, or a class, or a race make the attempt they are likely to be defeated by the operation of causes of which they are ignorant, and against which they are unwittingly opposing themselves.

Deaths and the General Death-Rate : The deaths registered in Cheltenham in 1907 were 738 in the gross. Thirty of these were brought in from districts outside practically to die in the town, and these are deducted to give us the nett number upon which to calculate our death-rate. Apart from these 30, who were almost all from surrounding villages and making temporary use of our institutions. I do not attempt other corrections as by taking cognisance of people who died in houses here after a short residence, or of those of our own proper population who died whilst away, should I hear of any, unless it be some very marked example of a death of a person that undoubtedly did or did not belong to the town, as in the case of the person who dropped down dead at the railway station whilst travelling, or that one that went from here to Birmingham for an operation and died there. For the rest it is impossible to arrive at any accuracy in attempting to make an exchange, and we may suppose that as many die in this town who do not really belong to it as those who do belong to the town and die away from it. In this, however, I think it likely that a disadvantage accrues to the death statistics of this particular town on account of a tendency for elderly people to come in as settlers, and for young people to move away, and perhaps also on account of a few persons being sent here for the good of their health when ill and likely to die. To keep a record of comers and goers is, however, not feasible, and more likely to result in egregious error, than in correct statistics. The 708 deaths give us a death-rate per thousand living of 13·88. This figure is almost identical with that of the previous year and is the lowest but one ever recorded.

The year 1907 in regard to deaths began for us badly. We had a good many more deaths than usual during the first quarter of the year. The latter part of the winter was marked with severe weather, influenza was rife, and these conditions proved fatal to a great many old people, so that we had an enhanced death-rate for the first quarter of the year, and even at midsummer our half-year's death-rate was 2 per thousand above the average rate. Later matters became more propitious, so much so towards the end of the year as to make the number of deaths for the last half of the year as favourable to a low death-rate as they were unfavourable in the first half.

THE INFANT DEATH-RATE: The number of infants under 1 year of age in proportion to the number born was last year 95 per 1,000, the rate in the previous year having been about the same, namely, 100 per 1,000, and the average rate for the previous ten years 124. Our infant death-rate is therefore diminishing, and the rate of 95 deaths per 1,000 births is in no way excessive as compared with other places, but is considerably below the rate for the whole country.

The Zymotic Death-Rate for 1907, that is, the death-rate for the seven leading zymotic diseases together including all forms of diarrhœa and enteritis in children, was ·60. Some further notes upon the zymotic disease of the year will be found below.

Comparative Summary showing Births and Death-Rates, Infant Death-Rates and Zymotic Death-Rates in other parts of England as compared with Cheltenham in the year 1907.

	Annual Rates per 1,000 living.			Per 1,000 Births.
	Birth-rate.	Death-rate.	Zymotic Death-rate	Death-rate of Infants under one year old.
England and Wales	26·3	15·0	1·26	118
76 Greatest Towns ...	27·0	15·4	1·54	127
142 Smaller Towns ...	25·7	14·5	1·29	122
England and Wales ... (less the above towns).	25·6	14·7	·91	106
Cheltenham	17·2	13·8	·60	95

Table of Statistics for the last 10 years, showing Deaths from Chief Zymotic Diseases, and Zymotic Death-rate, and Total Deaths and General Death-rate; also Total Births and Birth-rate per 1,000 of population, and (under 1 year old) Infant Death-rate per 1,000 children born.

	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Population	49,000	49,000	49,000	49,500	49,700	50,500	50,500	50,500	51,000	51,000
Small Pox	...	...	...	...	1	...	...	...	...	...
Measles	13	8	2	1	15	...	...	30	7	...
Scarlet Fever	6	7	...	1	2	2	3	1	1	...
Diphtheria	7	11	4	7	10	3	3	6	9	7
Whooping Cough	5	14	...	14	8	5	3	11	1	7
Enteric and Continued Fevers	5	5	6	1	2	3	2	2	1	2
Diarrhœa, Enteritis, &c., in Young Children	16	24	23	16	13	16	39	24	16	15
Total Deaths from seven chief Zymotics	52	69	35	40	51	29	50	74	35	31
Death-rate from Chief Zymotics	1·06	1·40	·71	·80	1·02	·57	·99	1·46	·68	·60
Total Deaths belonging to District	804	775	688	757	715	643	714	747	711	708
General Death-rate	16·4	15·8	14·0	15·2	14·3	12·7	14·1	14·8	13·9	13·8
Total Births	1090	1044	968	1005	945	1062	961	995	975	881
Birth rate	22·2	21·3	19·7	20·3	19·0	21·0	19·0	19·7	19·1	17·2
Infant Death-rate per 1,000 Children born	146	147	115	111	120	85	133	131	100	95

Zymotic Diseases.

Last year was on the whole a very favourable year in regard to the occurrence of zymotic diseases in Cheltenham. Of notifiable diseases we had a smaller total than for fifteen years past, and never in the statistical history of the town have we had so few cases of Scarlet Fever. The following table gives the number of cases notified in each month of the year :—

ZYMOTIC DISEASES NOTIFIED in each month during 1907.

Month.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Puerperal Fever.	Erysipelas.	Small-pox.	Totals.
January	8	2	3	...	2	...	15
February	3	12	...	...	...	...	15
March	2	3	...	...	2	...	7
April	2	4	3	...	2	...	11
May	2	16	...	...	1	...	19
June	3	9	1	...	1	...	14
July	1	8	...	...	2	...	11
August	2	4	...	...	...	...	6
September	4	...	...	...	2	...	6
October	...	1	...	...	2	...	3
November	2	5	2	...	1	...	10
December	1	7	5	...	1	...	14
The 12 months Totals	30	71	14	...	16	...	131
Total No. treated in Hospitals	25	50	9	...	...	...	84

Scarlet Fever : The thirty-one cases of mild Scarlet Fever is a comparatively trifling incidence of this disease. Scarlet Fever is, practically speaking, always with us, and in no town of the size of Cheltenham can this disease be expected to be entirely absent, any more than Measles can be expected to be absent. On one or two occasions, however, during last year only one case existed in the town, and that solitary one in the hospital, so that, practically speaking, the town was quite clear of it. It is now some years since Scarlet Fever reached what might be considered prevalent proportions, but what may happen in the next few years is uncertain. The few cases that have lately occurred, and I have enquired more particularly than usual into their possible cause or origin, have cropped up sporadically at wide distances from one another all over the town, and without presenting any history of contact or connection of any sort with one another, or with any other known case. In each case the patient has never been absent during the previous month or more from the town, and has been living the normal home life. The question is, where does the infection come from under these circumstances, or, supposing that there be an origin apart from existent cases, how is it that at one time it is more active than another. The hospital isolation of Scarlet Fever, which in certain quarters has met with a good deal of criticism and incredulity, may have assisted us considerably, but I fear is not the whole cause of our present comparative immunity. We shall see whether hospital isolation as practised here, and I doubt whether there is any town of this size where it is or can be more effectively practised, will suffice to keep down the disease to anything like its present proportions. The history of Scarlet Fever in Cheltenham will, in fact, be as good a trial of preventive effect of hospital isolation as is likely to be anywhere obtained. The staff of the hospital have lately had an easy time, and the permanent maintenance charges of the hospital have grown so heavy in relation to the number of cases treated, that the cost of treatment per head has been altogether out of proportion to the ordinary estimate. It may well be hoped that this state of things will continue, and even become more pronounced, though it should result in the present provision for the permanent maintenance of the hospital proving inadequate, and drive the managers to apply to the Corporation for a further subscription of annual cash.

Diphtheria : There were only a few more cases of diphtheria notified last year than of late years. We had 71 cases, and for some years past we have had about 60, the average of the last ten years being 65. A greater number than usual were treated in hospitals, 50 cases being so treated. We had 9 deaths, which show that many of the cases were severe. The average number of deaths in the borough for the last ten years has been about 7, and so altogether it was very nearly an average year. Diphtheria is much heard of now everywhere, partly on account of the great attention and study that has been latterly given to it, and cases are now called diphtheria which formerly were passed simply as sore throats. There is so evidence to show that diphtheria is more prevalent in Cheltenham now than formerly. I do not for a moment suppose it to be so. I am glad that the title "membranous croup" has been dropped by our local practitioners, who now take it to be synonymous with diphtheria, and notify it under the latter name, whilst the word "croup" finds a sole application in our death returns to the non-infectious spasmodic affection, which as a fatal complaint is of rare occurrence. The cause and prevention of Diphtheria is still only a matter of partial knowledge, but such knowledge as we have is of useful kind. We are aware that it is due to the growth of the Diphtheria bacillus, and we know the bacillus. What we now want to better understand are the conditions of the body which permit of the development of the disease, and how to keep the body always in a state of good defence against it, because that there is such a state of insusceptibility is quite sure, and this condition is happily the more common ; if it were otherwise the number of Diphtheria cases would be very great since the Diphtheria bacillus is much abroad in people's throats and elsewhere.

TYPHOID FEVER : Our 14 cases and 2 deaths of Typhoid or Enteric Fever is a mild visitation calling for no particular comment. It may be mentioned that several of the cases that occurred together near the end of the year did not quite answer to the description of the Typhoid Fever that used to be most commonly met with, either in regard to symptoms and course, or, in the case of the two that died, in regard to the *post mortem* signs. The latter showed multiple minute ulcers which extended beyond the ileum into the colon, and one of the doctors who had the treatment of these cases was inclined to call them "paratyphoids."

OTHER INFECTIOUS DISEASES : At the commencement of the year we had a good many cases of German Measles, the epidemic of the previous year being carried on into 1907. During the two years a very large number of children suffered an attack of this red-rash disease, and if an attack of such a disease could protect the same person from Scarlet Fever, the small number of cases of Scarlet Fever of last year might be thus accounted for. But whether the one disease influenced the occurrence of the other in any degree is really amongst the things unknown. I am very familiar with the differences presented between a typical case of Scarlet Fever and one of German Measles, and with the fact that one has been known to follow the other after only a short interval. But all I know is not sufficient to prevent this possibility of cause and effect being suggested to me, having my experience of the two events plainly in mental view.

Whooping Cough, Mumps, and Chicken Pox came together in the summer time and attacked the children in three of our schools badly. The infants' department was closed by my advice in the case of one school, but although in the other two schools, and particularly in one of them, the attendance was very much reduced on account of children getting one or other of these complaints, personal inquiry showed the disease to be of such a mild type that it did not occur to me to be worth while disturbing the education of those that remained by closing the school. Such action would not have resulted in any material reduction in the number of cases occurring. And generally speaking in regard to this question of school closing, it is a matter of nice judgment by the Medical Officer of Health upon the spot, and people who are less well acquainted with the facts, and less qualified to make the judgment, would always do well to reserve their opinions.

Measles broke out in one locality and caused the closing of the infants' department of Holy Trinity School. This outbreak was curiously limited to one group of streets, and the next nearest school with an infants' department, namely, St. John's, which is quite a short distance away, remained unaffected. At the time of closing the school I found upon paying personal visits numerous cases of Measles in houses in the group of streets of Fairview, east of Sherborne Street. Our last great epidemic of Measles began upon this side of the town, and in the course of a few months swept through it, and a repetition of this experience was feared, but three weeks later no case of Measles could be found or heard of in Fairview or its neighbourhood. Perhaps this was an instance where the closing of a school was effective in preventing the spread of Measles, but I think there must have been some greater reason for this sudden collapse of the infection. However, whatever checked the spread of the disease, it was happily checked.

Influenza was again rife in the winter months, especially in the spring quarter, and was the direct assigned cause of the unusually large number of 19 deaths, and I do not doubt that some of the deaths from pneumonia and bronchitis were partly due to the influenza infection.

Phthisis: Our voluntary system of notification of Phthisis is not very successful. At any one time in the borough I estimate there are about 100 cases of Phthisis existent. Last year we had 47 deaths registered from this malady, but only 11 notifications, so that the number notified was a long way behind even the number that died. I believe it to be a common experience where voluntary notification has been adopted for only a fraction of the cases occurring to be notified. But I might take this opportunity of reminding medical practitioners that, for statistical purposes, and for the knowledge of the number of cases occurring, if for nothing else, it is desirable that Phthisis should be notified, and the usual fee for notification is paid. Wherever the notifying practitioner indicates that he wants nothing done and no enquiries made, his request is always complied with, otherwise, in regard to patients in poor-class houses, a printed card of instructions concerning spitting, &c., and a spitting bottle, is supplied, and stock taken of the condition of the house, and mode of life of the patient and his friends, and anything that can be done to amend insanitary conditions is done. Disinfection is done or offered in every case after death, and notices served for necessary cleansing, limewashing or repapering.

The death-returns of Phthisis cases indicate that the greater proportion of cases occur in small houses, where the effects of overcrowding are likely to be felt, and exercise themselves as a cause. Occasional cases do occur in the larger houses, but with such infrequency as to make evident the saving effect of larger apartments and better living. There may, however, be other causes operating to increase the number of Phthisis cases amongst the poor, such as a lower development and vitality in the lowest section of all. A weak innervation seems to assist or permit the development of Phthisis, as is evidenced by the large proportionate number of deaths from this disease in asylums for the mentally afflicted.

In the course of last year a proposition was made by the local branch of the Charity Organisation Society to commemorate the useful life of a lately deceased townsman, who during his residence amongst us had rendered great service in charitable causes, by erecting a small hospital or sanatorium of four beds in some suitable place for the reception of poor Phthisis cases belonging to Cheltenham. Provided the necessary funds could be raised the proposition was eminently feasible, and there could have been no difficulty in successfully working the institution apart from the question of financial means. A difference of opinion amongst those who desired to take part in the memorial, as to whether it should take the above form, or provide increased accommodation for the reception of convalescents from the General Hospital and elsewhere, grew so acute, as to result in the abandonment of the whole project, and it does not now seem likely that either want will be supplied in this connection. Doubtless the purposes of both parties were admirable, each in its way, but it is a pity they should have been in destructive conflict.

VACCINATION : Vaccination in Cheltenham is done with only moderate thoroughness, but in the present condition of the law as to vaccination a maximum protection of the community against small-pox by this means cannot be expected. Fortunately the infectious material causing small-pox now existing in the country is reduced to a very small amount as compared with a hundred years ago, and with a better sanitary organisation it is easier to control an outbreak and keep the disease down than was formerly the case. The amount of the infection of small-pox at any one time existent is in direct proportion to the number of actual cases of the disease that have had existence in the period immediately antecedent. That vaccination has had a great effect in putting out of existence the large amount of small-pox infection that formerly prevailed will be admitted by all who have had opportunity of observing the effect of vaccination in preventing small-pox, and by all unprejudiced persons who are capable of giving credence to the evidence of those who have the experience.

The number of primary vaccinations effected in the borough last year was 565, which, compared with the number of births that took place in the year, proves to be the exact average number for the last seven years, as shown below.

Year.	Births.	Primary Vaccinations.	Percentage of Vaccinations to Births.
1901	1005	545	54
1902	955	629	66
1903	1062	851	80
1904	961	552	57
1905	995	609	61
1906	975	669	68
1907	881	565	64
Average for 7 years -	975	631	64

Number of cases of Zymotic Disease notified in Cheltenham since notification began.

Year	Scarlet Fever	Diphtheria	Enteric Fever	Puerperal Fever	Small-pox	Erysipelas
1890	93	16	24	2	...	...
1891	75	15	19	...	...	...
1892	264	10	10	...	...	...
1893	419	33	63	4	2	...
1894	147	26	27	1	3	...
1895	89	25	34	3	1	...
1896	126	60	26	4	22	...
1897	224	43	20	1	...	...
1898	296	52	23	5	...	...
1899	273	80	16	...	...	...
1900	103	74	32	1	...	21
1901	67	58	18	1	...	16
1902	147	63	18	3	1	19
1903	142	65	17	...	1	25
1904	143	59	7	...	...	25
1905	116	65	16	...	4	42
1906	104	61	24	6	1	37
1907	30	71	14	...	...	16
Average for all years	158	48	22	1·7	1·9	25

Deaths Certified by Coroner after Inquests in 1907.

Accident by fall	7
,, by being thrown from bicycle	1
,, by burns and scalds	5
,, by poisoning	2
Suicide by hanging	2
,, by shooting	1
,, by drowning	1
Heart Disease, syncope	12
Pneumonia, bronchitis	3
Cancer and fracture of arm	1
Epilepsy	1
Apoplexy, cerebral hæmorrhage	2
Want of attention at birth	1
Delirium tremens	1
Internal hæmorrhage	1
	41

Deaths not Certified in 1907.

Heart disease, heart failure, syncope at ages 60, 89, 69, 57, 73	5
Senile decay at ages 85, 80, 81	3
Premature birth at age a few minutes	1
	9

Ward Statistics.

The following Lists give the deaths in the streets in which they occurred. The figures after the name of the chief cause of death represent the age at death, a comma separating one death from another. The letter "m" after the figure means months.

NORTH WARD.

Albert street, St. Paul's	heart disease 88, 63
Albert street, St. Peter's	old age 82
Arle	phthisis 43
Baker street	old age 86
Bloomsbury street	general degeneration 70, bronchitis 19 m.
Burton street	apoplexy 73, 72, broncho-pneumonia 10 m., cystitis 76, heart disease 81, paralysis 73, old age 86
Carlton place	debility from birth 14 m., Addison's disease 54
Cleeveland street	cirrhosis of liver 59, old age 87, enteric fever 24, heart disease 67
Devonshire street	old age 80, cancer 62
Elm street	bronchitis 1 m., weakly from birth 17 days
Elmstone street	phthisis 33, old age 82
Gardener's lane	fall and bronchitis 85
Gloucester road	intestinal obstruction 76, bronchitis 82, old age 85, accident by burns 73, cancer 48
Granville street	epilepsy 36, abcess and peritonitis 8, acute rheumatism 20
Grove street	heart disease 56, cancer 75
Hereford place	enteritis 5 m., apoplexy 64
High street	cancer in abdomen 63, hip joint disease 43, heart disease 38, cerebral softening 72
King street	old age 87, aortic and kidney disease 58, heart disease 49, 70
King street gardens	bronchitis 1
Malvern street	phthisis 21, pneumonia 65, cancer 67
Market street	heart disease 75, 69, tubercular meningitis 2, phthisis 22
Marsh Lane	broncho-pneumonia 23 m., 10 m., pneumonia 70, apoplexy 80
Millbrook street	patent foramen ovale 8 days, pneumonia 72, apoplexy 50, phthisis 36
Milsom street	rheumatic gout 53, acute rheumatism 12
Nailsworth terrace	cancer 56, apoplexy 62
New street	congenital malformation 8 m., enteric fever 18, bronchitis 21 m., marasmus 2 m., influenza 65, syncope 89, cancer 73, apoplexy 84, sarcoma 37, heart disease 86

Normal terrace	peritonitis 85
Park street (lower)	phthisis 12, 38, general degeneration 71, cellulitis of orbit 20, tubercular meningitis 4, enteritis 7 m., pyæmia 1
Phœnix passage	apoplexy 45
Queen street	bronchitis 1 m., 12 days, nephritis 58, congenital debility 24 days, aneurysm 53, 67, cirrhosis 1 m., old age 83, marasmus 6 m.
Russell place	phthisis 8
Russell street	heart disease 54, 54, miliary tuberculosis 6, fall and meningitis 73
St. Paul's street North	old age 89, 91, cerebral tumour 65
St. Paul's street South	old age 92, premature birth 6 hours, nephritis 56, miliary tuberculosis 3
Sandfield road	influenza 88
Stanhope street	heart disease 46, old age 77, whooping cough 6 m., premature birth 6 days
Stoneville street	premature birth 12 days, whooping cough 22 m., old age 70
Sun street	bronchitis 79, emphysema 52, pneumonia 33, old age 77
Swindon place	sarcoma 2
Swindon road	heart disease 69, old age 81, arterio-sclerosis 49, gastro-enteritis 5 m., 5 m., cancer 54, premature birth 1 day
Swindon street	cancer 26, old age 84
Swindon terrace	apoplexy 44
Tewkesbury road	cancer 62, 42, bronchitis 78, 75, convulsions 28 days, heart disease 10 m., phthisis 40, pneumonia 5 m., marasmus 2 m., broncho-pneumonia 9 m., middle ear disease 12, 11, inanition 1 day, premature birth 6 days, hemiplegia 47
Townsend street	whooping cough 2, influenza 55, nephritis 65
Victoria street, St. Paul's	whooping cough 15 m., parametritis and peritonitis 19, bronchitis 4 m.
Waterloo street	heart disease 55, 76, old age 83, 77, tubercular enteritis 3, influenza 5 m., marasmus 1 m.
Whitehart street	phthisis 33
Worcester street	phthisis 46, old age 77

Deaths in Institutions, not capable of being referred to streets and apportioned to this ward : premature birth 2 hours, phthisis 43, suicide by hanging 41, heart disease 73, 57, gangrene 76, old age 95, 78, 81

SOUTH WARD.

Albert cottages	bronchitis 83
Bath parade	apoplexy 69, pneumonia 91

Bath road	scalds 2 premature birth 1 hour, broncho-pneumonia 9 m., nephritis 80, tubercular meningitis 14, emphysema 55, bronchitis 97, dementia 71, cystitis 63, angina-pectoris 76, pneumonia 10 m., heart disease 68, apoplexy 90, cancer 65, general degeneration 66, phthisis 18
Bath street	diphtheria 7
Bath street (upper)	bronchitis 75, heart disease 66, 35
Bath terrace	meningitis 3 m.
Cambray	ovarian cyst and operation 21, nephritis 35
Charlton lane	apoplexy 87, premature birth 5 hours, sarcoma 66
Clare street	bronchitis 78, cancer 56
College lawn	suicide by shooting 56
Commercial street	meningitis 3, cancer 70
Corpus street	heart disease 74
Ewlyn road	paraplegia 44
Ewlyn terrace	broncho-pneumonia 4 m., phthisis 41, diarrhœa 2 m., convulsions 2 m.
Exmouth street	heart disease 66, 66
Exmouth terrace	bronchitis 50
Fairford avenue	influenza 86, enteritis 8 m., old age 83
Fairview place	cirrhosis of liver 12
Fairview road	broncho-pneumonia 6 m., endocarditis 21, old age 80, enteritis 6 m.
Fairhaven street	apoplexy 77
Francis street	bronchitis 69, old age 71, cancer 63
Gratton street	gastric ulcer 44, phthisis 32, bronchitis 86
Great Norwood street	nephritis 57
Hayes cottage homes	heart disease 81, old age 85, cancer 77
High street	cancer 72, 40, uræmia 70, embolism 78, premature birth 19 days
Imperial square	phthisis 59
Keynsham road	nephritis 77
Langdon road	sepsis 15 days
Leckhampton road	hemiplegia 76, phthisis 19, 19, nephritis 33
Leicester terrace	bronchitis 25 days, diphtheria 10
Mitre street	old age 89, phthisis 31
Montpellier grove	ulcer of duodenum and operation 65, pneumonia 67
Montpellier terrace	diabetes 56
Montpellier villas	old age 88
Morley terrace	accidental poisoning by berries 4
Naunton crescent	heart disease 62, apoplexy 70, tetanus 71, old age 91, delirium tremens 41, prostatitis 70, cancer 72
Naunton lane	granular kidney 89
Naunton park terrace	fatty heart 69, congenital defect 9 hours
Old Bath road	old age 89, tumour of bladder 61
Oriel road	heart disease 58

Pilley	hemiplegia 63, heart disease 50, fall and meningitis 10
St. Luke's place	phthisis 15, old age 89
St. Luke's square	cancer and operation 69
St. Philip's street	bronchitis 70, cancer 65, thrombosis 37
Sandford street	old age 85, bronchitis 62, phthisis 42, apoplexy 73
Sandford terrace	old age 86, diphtheria 6, bronchitis 17
Suffolk parade	diabetes 89, heart disease 61, cancer 78, diarrhœa 3 m.
Suffolk road	apoplexy 74
Suffolk street	heart disease 79
Thirlestaine road	heart disease 75, 17
Union street	phthisis 17
Vernon place	old age 80, heart disease 63
Wellington street	cirrhosis of liver 39
White Cross square	heart disease 77, intussusception 27

Deaths in Institutions, not capable of being referred to streets, and apportioned to this ward: old age 74, 75, 79, pneumonia 67, cancer 73

EAST WARD.

Albert place	varicose veins 30, old age 80, bronchitis 10 m., phthisis 46
All Saint's road	heart disease 70, 74, stricture of urethra 51
Battledown approach	fall and fracture 76
Brighton road	influenza 86
Carlton street	heart disease 62
Chapel lane	cancer 58
Cleeve view road	premature birth 6 days
Coltham terrace	accidental poisoning by acid 70, convulsions 13 m.
Columbia street	tubercular abcess 79, apoplexy 58
Denmark villas	old age 81
Duke street	apoplexy 61, old age 81, influenza 65, pneumonia 82, cancer 60
Fairview road	old age 84, 83, 84, pleuro-pneumenia 33, heart disease 18
Fairview street	paraplegia 70, cirrhosis of liver 62, intestinal ohstruction 69, old age 85, 83, enteritis 3 m.
Glenfall street	bronchitis 71, phthisis 49
Grosvenor street	heart disease 75
Hale's road	gall stones and operation 68, old age 83, bronchitis 69, apoplexy 67, heart disease 45
Hayward's road	bronchitis 69
Hewlett place	bronchitis 1 m., old age 87
Hewlett road	old age 82, 93, cancer 64
High street	phthisis 22, arterio-sclerosis 61, heart disease 77, bronchitis 67
Jersey street	acute eczema 5 m., broncho-pneumonia 4

Keynsham street	bronchitis 69, old age 90
King's road	bronchitis 81, cancer of rectum 43, 83, old age 78
Leighton road	influenza 70
London road	old age 81, bronchitis 58
Oxford parade	gastritis 76
Park street (upper)	bronchitis 84, 70, apoplexy 85, old age 75, 86, ascites 49
Princes street	diabetes 20, cirrhosis of liver 65, old age 77
Priory street	found dead newly born, arterio-sclerosis 80, old age 80
Rosehill street	heart disease 66, whooping cough 17 m.
St. Anne's terrace	diarrhœa 4 m.
St. James' street	phthisis 21, cerebral embolism 54, mitral-stenosis 24, pneumonia 3
Selkirk street	phthisis 73
Sherborne place	heart disease 27, broncho-pneumonia 9 m., marasmus 5 m.
Sherborne villas	old age 85
Sidney street	heart disease 54, atheroma 53, phthisis 23
Sydenham road	influenza 80, accident by passage of pill into lung 65
Union street	influenza 33, debility 16 days, heart disease 42, ulcer of stomach 61, hæmorrhagic purpura 5
Victoria place	cancer 64
Victoria terrace	old age 81
Whaddon lane	cancer of uterus 55, gastric ulcer 42
Winstonian road	pneumonia 87, whooping cough 2, 8 m., atropby 2 m., nephritis 54
Witcombe place	apoplexy 50, bronchitis 5 m.
York street	cirrhosis of kidney 62, phthisis 47, marasmus 15 m.

Deaths in Institutions, not capable of being referred to streets, and apportioned to this ward: old age 93, 91, 76, pneumonia 65, cancer 67, renal disease 54.

WEST WARD.

Alstone avenue	endocarditis 48, apoplexy 28
Alstone	bronchial catarrh 26 days, old age 70, 71, apoplexy 60, diphtheria 52, 17, gastritis 70, weakness 20 minutes
Ambrose street	burns and shock 75, premature birth few minutes, diphtheria 5
Arle	arterio-sclerosis 77
Bayshill road	cancer 76, arterio-sclerosis 68
Chapel street	heart disease 43
Christ Church road	heart disease 82
Douro road	bronchitis 70
Eldorado road	cancer 67, 73
Glencairn park road	heart disease 66

Gloucester road	congenital defects 45 m., old age 85, 89, 96, nephritis 57, 76, heart disease 73, suicide by hanging 77, arterio-sclerosis 87, phthisis 31
Great Western terrace	diabetes 72, old age 80, 78, phthisis 30
High street	premature birth 10 minutes, phthisis 44
Kensington avenue	diabetes 79
Lansdown crescent	abcess and peritonitis 47, suicide by drowning 72, heart disease 70, senile dementia 91
Lansdown place	cirrhosis of liver 81, marasmus 1 m., cancer 89
Lansdown road	phthisis 50, 67, heart disease 75
Libertus road	Addison's disease 38, cancer 77, phthisis 37
Malvern road	cirrhosis of liver 56, general tuberculosis 6, 65, pelvic abcess 56
Manchester street	general tuberculosis 67
Midland Railway station	heart disease 58 (belonging to Shipton Oliffe)
Millbrook street	prematurity 25 days
New street	phthisis 35, gastric enteritis 5 m., alcoholism 42
Parabola road	arterio-sclerosis 89
Queen's retreat	cancer of rectum 55, diarrhœa 5 m.
Queen's road	want of attention at birth newly born, heart disease 30
Roman road	bronchitis 84, diphtheria 9, cerebral softening 82
Rowanfield road	apoplexy 82, ruptured aortic valve 55, congestion of lungs 85, atrophy 1 m.
Royal crescent	nephritis 62
St. George's place	cancer 53, 69, heart disease 15, 68
St. George's road	bronchitis 70, old age 78, 88, 75, 101, cancer 57
St. James' square	pericarditis 89

Deaths in Institutions, not capable of being referred to streets, and apportioned to this ward: old age 85, paraplegia 53.

CENTRAL WARD.

Albion street	phthisis 50, empyema 52
Berkeley avenue	heart disease 67
Brunswick street	old age 86, apoplexy 69, chronic hepatitis 59
Clarence square	old age 86
Courtenay street	cancer of liver 31, apoplexy 64
Dunalley parade	old age 80
Evesham road	cancer of stomach 82
Fairview road	heart disease 78, enteritis 8 m.
Gloucester place	congestion of lungs 79
Grafton passage	old age and burn 81
Grosvenor place	alcoholism and cirrhosis 62
Grosvenor terrace	cancer of stomach 49, apoplexy 63

Hawarden parade	heart disease 85
Henrietta street	pneumonia 5, inanition 5 days
Limekiln row	meningitis 1
Malthouse lane	old age 88
Marle hill parade	diabetes 25, cirrhosis of liver 36, broncho-pneumonia 1
Marle hill road	premature birth 4 hours, nephritis 50
Monson terrace	heart disease 71
Northfield terrace	influenza 62, phthisis 16
North place	heart disease 61, cancer of stomach 66
Orchard place	old age 77
Pittville crescent	aneurysm of aorta 76
Pittville gates	influenza 63, nephritis 72
Pittville lawn	influenza 84, accident by fall 71, old age 84
Pittville parade	cancer 76
Pittville terrace	old age 83, bronchitis 88
Portland square	old age 95, 62, 81, apoplexy, 68, asthma 73, meningitis 15 m., phthisis 24, nephritis 69
Portland street	bronchitis 87, apoplexy 72, cancer 81, 46, appendicitis and peritonitis 63
Prestbury road	influenza 64, heart disease 74
Rose and Crown passage	old age 69, 78, phthisis 42, ileo-colitis 9 m.
Rutland street	fractured skull 67, phthisis 42, 29, old age 76, pneumonia 2, operation and heart failure 73, syncope and ulcer of leg 57, menigitis 36, erysipelas 7 m., nephritis 65
St. George's street	bronchitis 55, heart disease 53
St. Margaret's road	fracture of skull by accident 26
St. Paul's parade	old age 81, phthisis 47, cancer 74
St. Paul's street, North	arterio-sclerosis 77, phthisis 20, gastric ulcer 49, cancer 48
Sherborne place	broncho-pneumonia 18 m., heart disease 74, bronchitis 71
Sherborne street	cancer 78, pneumonia 39, gangrene 87, marasmus 6 m.
Swindon road	puerperal hæmorrhage 38, cancer 78
Warwick place	heart disease 68, apoplexy 81, meningitis 10 m., old age 80
Wellington passage	bronchitis 51
Winchcombe street	general paralysis 45, old age 83, phthisis 62, 28, heart disease 54
Windsor street	broncho-pneumonia 1 m.

Deaths in Institutions, not capable of being referred to streets, and apportioned to this ward: apoplexy 58, gangrene 64, old age 85, erysipelas 69.

MIDDLE WARD.

Alexandra street	Hodgkin's disease 63, heart disease 54, nephritis 39
Andover street	apoplexy 69
Ashford road	apoplexy 64

Brandon terrace	influenza 92
Casino place	internal hæmorrhage 63, gangrene 76, marasmus 2m.
Church road	bronchitis 69, ricketts 21m.
Clarence parade	phthisis 22, old age 77
Clarence street	intestinal obstruction 58, general paralysis 56
Croft street	old age 80
Dagmar road	defective assimilation 2 m., rachitis 11m.
Gloucester road	apoplexy 77, 63, heart disease 81
Granley road	apoplexy 84, 77, nephritis 5, pneumonia 10, heart disease 49
Gratton road	heart disease 71, leucocythæmia 63
Great Norwood street	diabetes 35, cancer 75, 69
Greville terrace	angina pectoris 66, old age 81
Hatherley place	atheroma 86, pulmonary apoplexy 69
Hatherley road	general degeneration 65, pneumonia 12
Hatherley street	heart disease 77
High street	tubercular meningitis 16, cancer 56, tubercular peritonitis 15
Imperial square	atheroma 73
Lansdown road	diabetes 55
Leckhampton road	colitis 74
Lypiatt lawn	nephritis 65
Lypiatt street	marasmus 2m, strangulated hernia 71
Lypiatt terrace	heart disease 73, 80, malignant disease 60
Montpellier street	nephroptosis 42
Montpellier terrace	heart disease 45, 47
Moorend crescent	nephritis 29
Moorend Park road	diabetes 30
Moorend road	apoplexy 55, influenza 70, 40
Ormond Terrace	bronchitis 60
Painswick road	pnemonia 21, appendicitis and peritonitis 7, bronchitis 86, gastritis 15m.
Painswick terrace	bronchitis 60, cancer 74, heart disease 81
Park, The	cerebral softening 82, cancer 54
Park place	heart disease 75
Princes road	arterio-sclerosis 82, heart disease 80
Promenade	influenza 70, uræmia and hemiphlegia 33, malignant disease 46, 65, broncho-pneumonia 80
Rodney terrace	apoplexy 74
Royal parade	apoplexy 76, fall and shock 80, nephritis 58, empyema 48, urethral stricture 74
Royal Well terrace	pneumonia 87
St. George's place	heart disease 77
Shurdington road	old age 80
Spa buildings	old age 88, arterio-sclerosis 72
Tivoli place	nephritis 47
Tivoli road	old age 83, arterio-sclerosis 73
Tivoli street	gall stones 40, general degeneration 85, heart disease 38
Upper Norwood street	cancer 68, bronchitis 74

Deaths in Institutions not capable of being referred to streets, and apportioned to this ward :—gangrene 82, old age 75, apoplexy 74.

Deaths in Institutions within the Borough.

General Hospital.—Gall stones 40, fractured skull 67, 26, fall and after effects 73, 10, cirrhosis of liver 12, 36, 8, scalds 2, hæmorrhagic purpura 5, empyema 3, emphysema 52, cancer 58, 55, 26, 44, 74, 48, 40, enteritis 7 m., 6 m., heart disease 27, 54, chorea 14, pneumonia 33, 39, 21, 26, 3, nephritis 57, 43, appendicitis and peritonitis 7, 63, poisoning by acid accidently taken 70, acute miliary tuberculosis 6, 3, diphtheria 6, malignant endocarditis 21, myasthenia graais 25, sarcoma 40, 2, atheroma 53, phthisis 33, 47, 41, abcess and peritonitis 8, middle ear disease 12, intussusception 27, stricture of urethra 51, cerebral abcess 34, strangulated hernia 71, mitral stenosis 24, cerebral tumour 45, gastric ulcer 42, 49, parametritis and peritonitis 19, adenoma and operation 52, marasmus 6 m, tubercular meningitis 4, ovarian cyst and operation 21, pyæmia 1, general degeneration 66.

Workhouse Infirmary.—Apoplexy 74, 61, 55, 69, 58, 58, heart disease 73, 66, 55, 62, 38, 66, 66, 68, 57, 42, 49, 66. old age 80, 82, 95, 81, 75, 76, 78, 85, 83, 81, 80, 87, 70, 77, 70, 87, 69, 81, 83, 79, 66, 93, 88, 87, 77, 91, 83, 76, 77, 75, 83, 77, 71, 85, 86, 85, 86, 75, intestinal obstruction 58, general paralysis 45, hip joint disease 43, pueumonia 67, 72, 33, 65, 39, 82, 10, phthisis 40, 33, 42, 43, 37, 44, influenza 62, aneurysm 53, cancer 73, 73, 65, 42, 75, 62, 67, 65, 67, paraplegia 53, 65, empyema 52, operation and heart failure 73, gangrene 64, 67, 76, 76, 82, erysipelas 69, suicide by hanging 41, chronic nephritis 54.

The Delancey Hospital.—Enteric fever 18, diphtheria 9, 4, 4, 10, 7, 17, nephritis 3.

Home for Sick Children.—General tuberculosis 6, phthisis 13.

Ear, Eye, and Throat Hospital.—Cellulitis of orbit 29, otitis and meningitis 11.

Nazereth House.—Heart disease 71, apoplexy 74, old age 74.

Royal Parade Nursing Home.—Appendicitis and operation 8, 14, renal tuberculosis 30.

Imperial Nursing Home, Bath Road.—Cancer and operation 67, premature birth 2 hours.

Cambray Nursing Home.—Nephritis 32.

The whole of these deaths in Institutions have been referred to the streets to which they properly belonged in the foregoing lists, excepting 29 whose former addresses were not ascertained. These have been apportioned to the respective wards in numbers that appear appropriate in estimating the ward death-rates.

Of deaths in Institutions there were 29 of persons who came in from outside districts, and there was 1 who died whilst travelling at one of our railway stations. These are the 30 that are deducted from our gross number of deaths in estimating our nett death-rate. These deaths ought to be taken into account in the statistics of the districts to which they are referable, and this is true particularly in regard to the Cheltenham Rural District and Charlton Kings Urban District. The following are the districts to which these 30 deaths refer:—

Cheltenham Rural District	13
Winchcombe ,, ,, ...	5
Northleach ,, ,, ...	3
Stow-on-the-Wold Rural District	1
Charlton Kings Urban District	5
Tewkesbury ,, ,, ...	1
Dublin ,, ,, ...	1
Salisbury ,, ,, ...	1
	30

Ward Statistics, including Birth-rates and Death-rates from all and several causes, and Infant Death-rates (all at per 1,000 living inhabitants, excepting the Infant Death-rate, which is at per 1,000 children born) for the year 1907.

	Whole Town	North Ward	South Ward	East Ward	West Ward	Central Ward	Middle Ward
Population	51,000	9,700	8,650	8,506	7,050	7,436	9,658
Birth-rate	17·2	28·4	17·8	18·9	10·4	14·1	11·4
General Death-rate	13·8	17·4	15·1	13·7	12·3	14·2	10·1
Infant Death-rate	95	116	104	80	148	76	36
Zymotic Death-rate	·60	1·03	·81	·58	·85	·26	·10
Phthisis Death-rate	·92	1·23	1·15	·82	·91	1·34	·10
Tubercular Death-rate (other than Phthisis)	·35	·61	·35	·11	1·13	·00	·00
Cancer Death-rate (all malignant disease)	1·25	1·34	1·61	·94	1·27	1·48	·93
Pneumonia, Bronchitis, &c., Death-rate ... (Diseases of Respiratory Organs)	1·76	2·16	2·19	2·23	·71	1·88	1·24

Local Government Board Table No. I.—Vital Statistics of whole District of the Borough of Cheltenham during 1907 and previous 10 years.

YEAR.	Population estimated to Middle of each Year.	BIRTHS REGISTERED.		TOTAL DEATHS REGISTERED IN THE DISTRICT				Total Deaths in Public Institutions in the District	Deaths of Non-residents registered in Public Institutions in the District.	Deaths of Residents registered in Public Institutions beyond the District	NETT DEATHS AT ALL AGES BELONGING TO THE DISTRICT.	
				Under 1 Year of age		At all Ages						
		Number.	Rate per 1,000 of Population.	Number.	Rate per 1,000 Births.	Number.	Rate per 1,000 of Population				Number.	Rate per 1,000 of Population
1897	49,000	1043	21.2	160	153	800	16.3	133	24	The Medical Institutions for Cheltenham and neighbourhood are now all within the borough of Cheltenham.	776	15.8
1898	49,000	1090	22.2	159	146	828	16.8	162	24		804	16.4
1899	49,000	1044	21.3	154	147	793	16.1	121	18		775	15.8
1900	49,000	968	19.7	112	115	708	14.4	137	20		688	14.0
1901	49,500	1005	20.3	112	111	775	15.6	132	18		757	15·2
1902	49,700	945	19.0	114	120	737	14.8	177	22		715	14·3
1903	50,500	1062	21.3	91	85	666	13.1	138	23		643	12.7
1904	50,500	961	19.0	128	133	733	14.5	162	19		714	14.1
1905	50,500	995	19.7	131	131	773	15·3	177	26		747	14.8
1906	51,000	975	19.1	98	100	743	14.5	172	32		711	13·9
Averages for years 1897-1906	49,770	1009	20.3	126	124	755	15.1	151	22·6	...	733	14.7
1907	51,000	881	17·2	84	95	738	14·5	178	30	...	708	13.8

Area of District in acres (exclusive of area covered by water) 4,726

For names of Public Institutions receiving sick persons see pages 30 & 31.

Total population at all ages......	49,439	At Census 1901
Number of inhabited houses ...	10,352	
Average No. of persons per house	4.77	

Local Government Board Table II.—Vital Statistics of separate Localities in 1907 and previous 10 years.

Names of Localities	BOROUGH OF CHELTENHAM.				NORTH WARD.				SOUTH WARD.				EAST WARD.				WEST WARD.				CENTRAL WARD.				MIDDLE WARD.			
Year	Population estimated to middle of each year	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year	Population	Births registered	Deaths at all Ages	Deaths under 1 year
1897	49,000	1043	776	160	9790	No Return	158	52	8020	No Return	78	12	8242	No Return	127	27	6039	No Return	69	15	6553	No Return	122	27	8870	No Return	113	21
1898	49,000	1090	804	159	9790		176	60	8020		98	10	8242		114	24	6039		60	13	6553		102	21	8870		99	10
1899	49,000	1044	775	154	9790		161	57	8020		94	18	8242		108	14	6039		93	19	6553		104	15	8870		110	19
1900	49,000	968	688	112	9790		132	30	8020		73	11	8242		106	13	6039		68	12	6553		83	19	8870		109	12
1901	49,500	1005	757	112	9923	332	180	40	7864	142	109	13	8296	170	138	14	6542	128	88	17	7336	136	91	17	9478	97	151	11
1902	49,700	945	737	116	9923	256	173	46	7924	121	108	11	8356	177	132	19	6653	90	59	5	7336	166	117	22	9508	135	110	13
1903	50,500	1062	666	90	10023	303	143	30	8074	146	102	13	8506	194	125	13	6893	107	64	7	7436	167	106	19	9658	145	103	8
1904	50,500	961	733	126	10023	305	194	60	8074	151	106	15	8506	179	124	15	6893	94	80	9	7436	124	103	17	9658	108	107	10
1905	50,500	995	773	131	9700	307	197	52	8350	172	120	25	8506	177	137	17	6850	85	78	8	7436	132	115	16	9658	122	100	12
1906	51,000	975	743	98	9700	305	160	35	8650	153	125	14	8506	160	153	15	7050	93	55	7	7436	136	118	24	9658	128	100	3
Average of years 1897 to 1906	49,770	1009	745	126	9825	301	167	46	8101	147	101	14	8364	175	126	17	6504	99	71	11	7062	143	106	20	9309	122	110	12
1907	51,000	881	738	84	9700	276	169	32	8650	154	131	16	8506	161	117	13	7050	74	87	11	7436	105	106	8	9658	111	98	4

N.B.—In the first four years of these statistics the deaths in hospitals, &c., are not referred to the respective Wards, but are altogether excluded from the Ward statistics. Since 1900 the deaths in hospitals are included and. as far as possible, properly referred to the Wards to which they belong. The deaths in the whole Borough include all that died within the Borough, whether belonging to the district or not.

Local Government Board Table III.—Cases of Infectious Disease notified during the year 1907 for the Borough of Cheltenham.

Notifiable Diseases.	Cases Notified in whole District.							Total Cases notified in each Locality.						No. of Cases removed to Hospital from each Locality.						Total cases removed to Hospital.
	At all Ages	Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 & upwards	North Ward.	South Ward.	East Ward.	West Ward.	Central Ward.	Middle Ward.	North Ward.	South Ward.	East Ward.	West Ward.	Central Ward.	Middle Ward.	
Small-Pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria	71	...	9	48	6	7	1	10	12	14	15	10	10	8	11	11	6	8	6	50
Erysipelas	16	1	...	2	2	8	3	6	...	1	1	5	3	...	...	...	..	...	...	...
Scarlet Fever.........	30	...	5	20	4	1	...	7	6	4	4	2	7	7	6	4	3	...	5	25
Enteric Fever	14	...	1	8	3	2	...	8	1	...	3	2	...	6	...	...	2	1	...	9
Puerperal Fever......	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals ...	131	1	15	78	15	18	4	31	19	19	23	19	20	21	17	15	11	9	11	84

Local Government Board Table IV.—Causes of, and Ages at, Death during Year 1907 in the Borough of Cheltenham.

CAUSES OF DEATH.	*Deaths in or belonging to whole District at subjoined Ages*							*Deaths in or belonging to Localities (at all Ages).*						Deaths in Public Institutions in District
	All Ages.	Under 1.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65	65 and upwards.	North Ward	South Ward	East Ward	West Ward	Central Ward	Middle Ward	
Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Whooping Cough	7	2	5	..	...	...	...	4	3	...	...	...	...	...
Diphtheria (including Membranous Croup) ...	7	...	...	5	1	1	...	...	3	...	4	...	...	7
Enteric Fever	2	...	...	...	2	...	...	2	...	..	...	...	...	1
Epidemic Influenza	18	1	...	...	...	6	11	4	1	5	...	4	4	1
Zymotic Diarrhœa and Enteritis	15	14	1	...	...	...	...	4	4	2	2	2	1	2
Puerperal Fever	1	...	...	...	...	1	...	...	...	...	...	1	...	...
Erysipelas	2	1	...	...	...	...	1	...	...	...	...	2	...	1
Other Septic Diseases	2	1	1	...	...	...	...	1	1	...	...	...	...	1
Phthisis (Pulmonary Tuberculosis)	47	...	...	2	13	30	2	12	10	7	7	10	1	7
Other Tubercular Diseases	18	2	7	3	2	1	3	6	3	1	3	3	2	4
Cancer, Malignant Disease	64	...	1	...	...	31	32	13	14	8	9	11	9	19
Bronchitis	48	9	4	...	...	9	26	11	11	12	4	5	5	...
Pneumonia	34	10	6	3	1	3	11	9	7	7	...	6	5	12
Pleurisy	1	...	...	...	...	1	...	1	...	...	...	...	...	1
Other Diseases of the Respiratory Organs ...	7	...	...	...	...	3	4	1	1	...	1	3	1	2
Alcoholism, Cirrhosis of Liver	12	...	...	1	...	9	2	1	3	2	3	3	...	3
Venereal Diseases	2	...	...	...	...	1	1	...	...	1	...	...	1	1
Premature Birth	14	14	...	...	...	...	...	6	3	1	3	1	...	...
Diseases and Accidents of Parturition ...	1	...	...	...	...	1	...	...	...	...	...	1	...	...
Heart Diseases	85	1	...	...	6	29	49	20	18	12	11	10	14	15
Accidents	15	...	2	1	...	1	11	3	3	3	1	4	1	5
Suicides	4	...	...	...	...	2	2	1	1	...	2	...	...	1
Old Age	103	...	...	...	...	1	102	25	16	24	12	17	9	40
All other causes	199	29	5	6	6	71	82	45	29	32	26	23	44	55
All causes	708	84	32	21	31	201	339	169	131	117	88	106	97	178

There were also 30 deaths of persons who were not residents in the town.
These died in public institutions and chiefly belonged to surrounding villages.

BOROUGH OF CHELTENHAM SANITARY DISTRICT.

Deaths Registered from all Causes during the Year 1907.

(GROSS NUMBERS).

	AGES.											Totals.
	0 to 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards	
I. Specific Febrile, or Zymotic Diseases	19	9	5	3	1	2	2	5	7	2	5	60
II. Parasitic Diseases												
III. Dietic Diseases			2			4		5	1	1		13
IV. Constitutional Diseases	3	10	8	17	14	21	17	23	26	13	2	154
V. Developmental Diseases	18							1	10	57	37	123
VI. Local Diseases	25	14	7	11	13	22	32	47	87	60	21	339
VII. Deaths from Violence		2	1		1	1		1	6	6	1	19
VIII. Deaths from Ill-Defined and Not Specified Causes	20	2	1	1			2	3			1	30
Totals	85	37	25	31	29	49	53	85	138	139	67	738
1.—Specific Febrile, or Zymotic Diseases.												
1.—Miasmatic Diseases.												
Smallpox Vaccinated												
Unvaccinated												
No Statement												
Measles												
Scarlet Fever												
Typhus												
Whooping Cough	2	5										7
Diphtheria		2	5	1			1					9
Simple Continued and Ill-defined Fever												
Enteric or Typhoid Fever				2								2
Influenza	1				1	1		5	4	2	5	19
Other Miasmatic Diseases (Tetanus)									1			1
2.—Diarrhœal Diseases.												
Epidemic Diarrhœa (Enteritis and Gastro-enteritis, and Acute Diarrhœa in the young)	14	1										15
Dysentery												
3.—Malarial Diseases.												
Remittent Fever												
Ague												
4.—Zoogenous Diseases.												
Cowpox and effects of Vaccination												
Other Diseases (Tetanus)												
5.—Venereal Diseases.												
Syphilis												
Gonorrhœa, Stricture of Uretha							1		1			2
6.—Septic Diseases.												
Erysipelas	1								1			2
Pyæmia, Septicæmia	1	1										2
Puerperal Fever						1						1
II.—Parasitic Diseases.												
Thrush, and other Vegetable Parasitic Diseases												
Worms, Hydatids, and other Animal Parasitic Diseases												
III.—Dietic Diseases.												
Want of Breast Milk, Starvation												
Scurvy												
Chronic Alcoholism, Delirium Tremen, Cirrhosis of Liver			2			4		5	1	1		13
Delerium Tremens												
IV.—Constitutional Diseases.												
Rheumatic Fever, Rheumatism of the Heart			1	1								2
Rheumatic Gout							1					1
Gout												
Rickets	1	1										2
Cancer, Malignant Disease		1			2	6	9	18	21	11	1	69
Tabes Mesenterica												
Tubercular Meningitis, Hydrocephalus	2	5	1	1								9
Phthisis		1	3	13	9	13	7	2	2			50
Other forms of Tuberculosis, Scrofula		2	2	1	1	1			2	1		10
Purpura, Hæmorrhagic Diathesis			1									1
Anæmia, Chlorosis, Leucocythæmia								1				1
Glycosuria, Diabetes Mellitus				1	2	1		2	1	1	1	9
Other Constitutional Diseases												
V.—Developmental Diseases.												
Premature Birth	14											14
Atalectasis												
Congenital Malformations	4											4
Old Age								1	10	57	37	105
VI.—Local Diseases.												
1.—Diseases of Nervous System.												
Inflammation of Brain or Membranes					1	1					1	3
Apoplexy, Softening of Brain, Hemiplegia, Brain Paralysis					1	1	3	11	14	12	3	45
Insanity, General Paralysis of the Insane							1	1	1		1	4
Epilepsy						1						1
Convulsions	3	1										4
Laryngismus Stridulus (Spasm of Glottis)												
Disease of Spinal Cord, Paraplegia, Paralysis Agitans						2	1	1	3			7
Other Diseases of Nervous System			1				1		1			3
2.—Diseases of Organs of Special Sense.												
(*e.g.*, of Ear, Eye, Nose)			2	1								3
3.—Diseases of Circulatory System.												
Pericarditis									1			1
Acute Endocarditis				1			1					2
Diseases of Heart	1			5	2	5	11	11	28	17	3	83
Aneurism							1		1	1		3
Embolism, Thrombosis						1				1		2
Gangrene								1	1	3		5
Other Diseases of Blood Vessels					1		2	3	5	6	3	20
4.—Diseases of Respiratory System.												
Laryngitis												
Croup												
Emphysema, Asthma							2	1	1			4
Bronchitis	9	4			1		2	6	11	10	5	48
Pneumonia	10	6	3	1	3	2			6	2	3	36
Pleurisy	1						1					2
Other Diseases of Respiratory System									1	1	1	3
5.—Diseases of Digestive System.												
Dentition												
Sore Throat, Quinsy												
Gastritis and Gastric Ulcer						2	1	1	1	1		6
Diarrhœa (Symptomatic)												
Obstructive Diseases of Intestine, Hernia				1				1	2	1		5
Peritonitis										1		1
Appendicitis		2	1					1				4
Jaundice and other Diseases of Liver, Gall Stones						1			1			2
Other Diseases of Digestive System									2			2
6.—Diseases of Lymphatic System. (*e.g.*, of Lymphatics and of Spleen)												
7.—Diseases of Gland-like Organs of Uncertain Use.												
(*e.g.* Bronchocele, Addison's Disease)						1	1	1				3
8.—Diseases of Urinary System.												
Nephritis, Bright's Disease		1			3	3	4	7	5	3	1	27
Disease of Bladder or of Prostate								1	1	1		3
Other Diseases of the Urinary System					1	1			1			3
9.—Diseases of Reproductive System.												
A. *Of Organs of Generation.*												
Male Organs												
Female Organs				2								2
B. *Of Parturition.*												
Abortion, Miscarriage												
Puerperal Convulsions												
Placenta prævia, Flooding						1						1
Other Accidents of Child Birth												
10.—Diseases of Bones and Joints.												
Caries, Necrosis												
Arthritis, Ostitis, Periostitis												
Other Diseases of Bones and Joints												
11.—Diseases of Integumentary System.												
Carbuncle, Phlegmon												
Other Diseases of Integumentary System	1											1
VII.—Deaths from Violence.												
1.—Accident or Negligence.												
Falls			1						1	3	1	6
Fractures and Contusions					1				1			2
Gunshot Wounds												
Cut, Stab												
Burn, Scald		1							1	2		4
Poison		1							1			2
Drowning												
Suffocation												
Otherwise									1			1
2.—Homicide.												
Manslaughter												
Murder												
3.—Suicide.												
Gunshot Wounds								1				1
Cut, Stab												
Poison												
Drowning									1			1
Hanging						1				1		2
Otherwise												
VIII.—Deaths from Ill-defined and Not Specified Causes.												
Dropsy												
Debility, Atrophy, Inanition	9	1										10
Marasmus	9	1										10
Want of Attention	1											1
Abscess			1				1	1				3
Hæmorrhage								1				1
Found Dead	1											1
Causes not Specified or Ill-defined, Syncope				1			1	1			1	4

Local Government Board Table V.—Infantile Mortality during the Year 1907 in the Borough of Cheltenham.

CAUSE OF DEATH.	Under 1 week	1-2 weeks	2-3 weeks	3-4 weeks	Total under 1 month	1-2 months	2-3 months	3-4 months	4-5 months	5-6 months	6-7 months	7-8 months	8-9 months	9-10 months	10-11 months	11-12 months	Total Deaths under 1 year
All Causes { Certified	16	3	5	5	29	8	7	3	4	11	5	2	4	3	6	1	83
All Causes { Uncertified... ...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Diphtheria: Croup	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Whooping Cough	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	2
Diarrhœa (all forms)	...	...	...	...	...	...	1	2	1	6	1	1	2	...	...	...	14
Enteritis	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...
Premature Birth	10	1	1	1	13	...	...	...	1	...	...	...	...	...	...	...	14
Congenital Defects	2	1	...	...	3	...	...	...	...	...	...	...	1	...	...	...	4
Injury at Birth	2	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2
Want of Breast-milk, Inanition, Starvation	2	...	1	...	3	...	...	...	...	...	...	...	...	...	...	...	3
Atrophy, Debility, Marasmus ...	1	...	2	1	4	3	5	...	...	1	2	..	...	...	...	...	15
Tuberculous Meningitis	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	2
Tuberculous Peritonitis: Tabes Mesenterica	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Erysipelas	...	...	...	...	...	...	...	...	...	..	...	1	...	...	...	...	1
Rickets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Meningitis, not Tuberculous ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Convulsions	...	...	...	1	1	1	1	...	...	...	...	...	...	...	...	...	3
Bronchitis	...	1	...	2	3	3	...	...	1	1	...	...	...	...	1	...	9
Pneumonia...	...	...	...	...	.	1	...	...	1	1	1	...	...	3	3	...	10
Other Causes	...	...	1	...	1	...	...	...	...	2	...	...	...	...	1	...	4
Totals	17	3	5	5	30	8	7	3	4	11	5	2	4	3	6	1	84

Births in the year:—Legitimate, 836; Illegitimate, 45. Deaths in the year:—Legitimate infants, 70; Illegitimate, 8.
Deaths from all Causes at all Ages, gross 738; nett 708. Population, estimated to middle of 1907, 51,000.

WORK DONE.

Summary of Routine and other Sanitary Work done in the Health Department in 1907, with Notes thereon.

Report by the Chief Sanitary Inspector.

I herewith submit my report as Sanitary Inspector of the Borough of Cheltenham of the sanitary work done by the Department during 1907. During the year the places and trades over which the Council has sanitary control and which are supervised by the Health Department have been systematically inspected. The work carried out includes house-to-house inspections, the inspection of common lodging houses, houses let in lodgings, slaughterhouses, bakehouses, dairies, cowsheds and milkshops, factories, workshops, workplaces and outworkers, butchers', fishmongers', and fruiterers' shops and restaurants, each and all have occupied the time and required the attention of your inspectors, and whenever insanitary conditions were found to exist, such action as was necessary was promptly taken. The execution of all works undertaken for the suppression or removal of nuisances, whether it be a small matter of repair or reconstructional work, is carried out under the supervision of your inspectors. In all cases where notices are served requiring the abatement of nuisances, every care is taken to specify what work is required to be done. We have found from long experience that this method is most helpful to the owners of property and prevents misunderstandings as to what is necessary to be carried out to abate the nuisance to the satisfaction of the Department.

Following the practice adopted in previous years, a statement of sanitary operations is furnished below. On reference to this it will be seen that during the past twelve months 1,911 nuisances were discovered in connection with 962 houses and premises. To abate these nuisances 591 notices were served upon the responsible persons. In addition to the notices served, 246 letters were written requiring structural amendments, and numerous verbal notices have been given where the matter has been one requiring immediate attention.

SUMMARY.

Total Number of Houses and Premises Inspected	13747
Ordinary Inspections	1900
House-to-House Inspections	1265
Inspections of Work in progress	3247
Re-inspections	1857
Visits to Slaughter-houses	1011
,, Food Shops	851
,, Common Lodging Houses	255
,, Houses Let in Lodgings	211
,, Cowsheds, Dairies and Milkshops	129
,, Bakehouses	76
,, Workshops	793
,, Schools	61
,, *re* Infectious Diseases	469
,, *re* Public-house Conveniences	102
,, Places where Animals were kept	1519
Complaints Received	345
Number of Nuisances Reported	1911
,, ,, Houses and Premises dealt with	962
,, ,, Notices Served	591
,, ,, Letters Written referring to Notices	246
DRAINS :—	
Drains opened and examined under Sec. 41 P.H. Act, 1875	62
Smoke Tests applied to Drains	403
Chemical ,, ,, ,,	36
Water ,, ,, ,,	890
Defective Brick Drains removed	58
New Drains laid	290
Length in yards of Stoneware Pipe Drains laid	6375
,, ,, Heavy Cast Iron Pipes laid	1747
Manhole and Inspection Chambers provided	143
Intercepting Traps fixed	282
Stoneware Gully Traps fixed	737
Dip and Bell Traps removed	152
W.C.'s :—	
New Water Closets built	39
New W.C. Pans of the "Wash-down" type fixed	501
Old Pan Container and Long Hopper Closets removed	216
Flushing Boxes fixed to W.C.'s	117

Flushing Boxes repaired	107
Water Closet Drains unstopped	104
Soil Pipes :—	
Soil Pipes and Ventilating Shafts fixed	217
New Waste Pipes fixed and disconnected	188
New Lead Traps provided to Sinks	117
Miscellaneous :—	
Rooms cleansed and limewashed	374
Houses closed as unfit for human habitation	4
House Roofs, Rainwater Pipes, &c., repaired... ...	105
Yards and Areas asphalted or concreted	75
Ash Receptacles (movable galvanized iron with cover)	128
Bakehouses cleansed and limewashed	22
Slaughter-houses cleansed and limewashed	14
Workrooms cleansed and limewashed	32
Common Lodging Houses cleansed and limewashed...	9
Workrooms ventilated	4
Overcrowding in Dwellings abated	12
Overcrowding in Workrooms abated	4
Samples of Water taken for analysis	68
Urinals built or reconstructed	12
Urinals provided with a proper supply of water ...	12
Accumulation of Manure removed	51
Manure Receptacles built or reconstructed	8
Infectious Diseases :—	
Inquiries into Cases of Infectious Diseases	469
Notices to Schoolmasters with regard to Infectious Diseases	53
Notices to Parents with regard to Infectious Diseases	28
Notices to Free Library with regard to ,, ,, ...	14
Rooms Disinfected after cases of ,, ,, ...	258
Articles of Clothing, Bedding, &c., disinfected after Infectious Diseases	1860
Articles of Clothing disinfected for outside Sanitary Authorities and private persons	255

Inspections.

The total number of Inspections made by the Inspectors during the past year was 13,747, of these 1,265 were house-to-house inspections, 1,857 revisits to premises to ascertain if notices had been complied with, 1,862 to slaughterhouses and food shops, 793 to workshops, and 3,247 inspections of work in progress. The very large number of visits paid under the last heading is some measure of the importance which is attached to the official supervision of work which is undertaken in the remedying of sanitary defects.

Systematic house-to-house visitation furnish us with information upon which most of our notices are served requiring sanitary improvements to house property. These inspections reveal any insanitary conditions existing on the premises which may be a nuisance or affect the health of the occupants. When on this work we are not investigating a particular item, but are making a sanitary inventory of each house in succession and notes are taken of good and bad points. The result of these inspections are put in a register for future reference at any time, and all nuisances found are dealt with as promptly as possible. In the course of the house-to-house inspections made, numerous structural defects were discovered, in fact more than half the houses inspected were found to have one or more defects requiring amendment. Structural defects as a rule refer to leaky house roofs, damp walls, floors and walls in bad state of repair, defective paving of yards, etc. The complaints and applications received at the office numbered 345, all of which were duly investigated and dealt with as found to be necessary. Many of these were of the usual trivial character, and in some cases no nuisance was found to exist at the places complained of.

Improvements in Dwelling Houses.

Improvements effected in connection with Notices served is perhaps worthy of special mention. These improvements vary from trifling repairs to eaves spouting, rainwater pipes, etc., to the stripping of house roofs and re-covering same with new slates. 374 rooms were cleansed, limewashed or repaired, 105 roofs, eaves spouting, rainwater pipes, etc., repaired, 22 new w.c.'s provided, and 12 cases of overcrowding abated.

Altogether 1911 improvements have been made in connection with 962 premises.

Houses closed as unfit for Human Habitation under the Working Classes Acts.

These were houses in a worse condition than the last mentioned, being so bad that they could not be rectified whilst in occupation. During the year four houses have been represented to the Town Council as being unfit for human habitation. These were all closed voluntarily by the owners upon our representations, and three of them have been so altered and improved under our specifications as to have become again habitable. Two houses in Whitehart Street that were closed last year have been demolished. Two houses in Swindon Road were in such a bad state of repair that the owners, acting on our advice, pulled them down and had two new ones erected on the same site.

Improvements in House Drains.

One of the most important duties which devolve upon your Inspectors is the testing and examination of the drains of existing houses, and the supervision of the reconstruction of such drains when they are found to be defective. A good deal of the work under this heading is usually the result of house-to-house inspections. A certain proportion, however, is the outcome of complaints received as to nuisances existing, the investigation of which leads to the alteration, repair, or relaying of house drains and their connections.

In consequence of written complaint alleging a nuisance from defective drainage, the Council directed me to open the ground and examine the drains belonging to 62 houses and report upon their condition. In each case insanitary conditions were found to exist, and notices under Sec. 41 of the Public Health Act, 1875, were served upon the persons responsible to repair or reconstruct the drains as required.

In addition to the work done under the above mentioned Act, a good deal of drainage work has been done to obtain a Corporation Sanitary Certificate, and also by verbal notices.

Altogether your Inspectors have supervised the laying of 6,375 yards of stoneware pipes, and 1,747 yards of heavy cast iron drains, also the fixing of 282 intercepting traps, 737 stoneware gully traps, and 143 manholes and inspection chambers. In connection with this work 58 old brick drains were removed and replaced by watertight drains, and 152 iron dip and bell traps were taken out and stoneware gully traps substituted.

The drains of several houses which were built only a few years ago or where drains had been relaid within recent years were found to be in a defective condition, and upon examination it was discovered that a large number of the collars had become fractured, owing probably, either to the movement of the ground in which the pipes were laid, or to the expansion of the cement used for making the joints. Experience has proved that stoneware pipes will not for any length of time stand the required test. It constantly happens, therefore, that large sums of money are expended on the complete renewal of drains which had only been laid for a comparatively short time. For example, the stoneware pipe drains of a house were laid on and surrounded with Portland cement concrete, and the water test was applied before and after the filling in of the ground, when they proved perfectly sound and satisfactory. Six months later, the owner desired to have them tested, the water test was applied and the drains were found to leak very badly indeed. When the drain was uncovered I found that the pipes and the concrete were fractured, evidently due to the movement of the ground in which they were laid.

In another case a house built five years ago and never occupied, was taken by a tenant who insisted upon having the drains tested before signing the lease. On applying the test it was found impossible to fill the drains with water. At my request the owner gave instructions for a portion of the drain to be carefully uncovered so that I might have an opportunity of examining the pipes before they were disturbed. This was done, and of the twenty-one pipes laid bare no fewer than fourteen were found to be more or less badly fractured. The fractures were chiefly behind, and right round the collars of the pipes. Many more similar examples could be quoted where stoneware drains have proved faulty, and where they have been removed and replaced by iron pipes at considerable expense to owners, and this extra outlay could have been prevented by laying the iron pipes in the first case. It is owing to the serious problem presented by these repeated outlays that owners have to meet in cases similar to those that I have quoted that I began some years ago to advocate the use of iron drainage. My reasons for doing so was not based on the superior merits of iron as a material, but on the fact that it could be more easily manipulated, that it lent itself infinitely better to difficult and complicated situations, that it was not subject to breakage, and above all that in the end it was the least expensive material which would with absolute certainty stand the modern tests. One is forced to the conclusion that stoneware drains prove by far the most expensive in the long run, and, as a rule, become a serious menace to health. It is to be remembered that sound drains with properly devised sanitary arrangements, are the key to the healthiness of every household, and although the cost may be very considerable, it is only a comparatively small proportion of the total cost of the building.

The Corporation Sanitary Certificate.

There has been a greater demand for the sanitary certificates during this year than in 1906. There were 47 certificates granted last year as against 37 in the previous year, making the total granted since the commencement of this work 707. As usual, the inspections made have resulted in finding serious hidden defects in the drainage system, and insanitary fittings in the houses. The air in houses is often dangerously polluted by defective drainage, and by untrapped or improperly trapped fittings. To purify it is one of the main objects of the sanitary certificate. Offensive odours should never be tolerated ; they always mean something wrong, and when the sense of smell is offended, the warning should be instantly heeded. On the other hand, air which is absolutely dangerous may be non-odourous. Periodical testing is the only form of insurance against the evils arising from defective drainage. It should be remembered that neither lead, stoneware, or iron pipes will last for ever—they are affected by the foul materials they convey, by frost, and by mechanical injury. The efficiency of a trap is frequently destroyed by improper usage. Traps must be always kept charged with liquid, or the seal is broken. If no water is poured down the bath waste-pipe, for instance, only about 2 in. of water needs to evaporate, and the trap is unsealed ; there is then a direct passage for foul air from the waste pipe to enter the house. For the foregoing and other reasons that could be adduced the drains and sanitary fittings of the house should be periodically tested as to their soundness and satisfactory working. All about to take a house are strongly recommended before signing any agreement to insist upon an up-to-date inspection, and a certificate of sanitary fitness of the premises.

Sanitary Certificates.

Situation of Premises.	Gross Annual Value.
Allerton House, Paragon Buildings	£50
Argyle Place, 3, The Park	40
Bayshill Villas, 1	45
Bryncam, The Park	85
Clarence Square, 3	30
Dilkoosha (now Rosemead), Eldorado Road	90
Donnerville, King's Road	30
Douro Lodge, Douro Road	100
Eastbourne Villas, 2, College Road	40
Elmgrove (now Eastington), Eldorado Crescent	52
Elville, The Park	84
Evesham Lodge, Prestbury Road	55
Firleigh, St. George's Road	45
Fulshaw Lodge, Christ Church Road	135
Gloucestershire Dairy, Suffolk Parade	40
Grove House, Montpellier Grove	80
Handsworth Lodge (now Heysham House), The Park	85
Heathercroft, St. Luke's	50
Hiltwood House, Montpellier Terrace	57
Hollington House, Hale's Road	67
Holme Garth, Hewlett Road	36
Imperial Nursing Home, Montpellier Parade	110
Kingston, Overton Park Road	100
Lake House, Thirlestaine Road	300
Lansdown Terrace, 14	55
Montpellier Terrace, 6	60
Montpellier Terrace, 8	45
Myrtle Villa, Tivoli Road	26
Newcourt, Lansdown Place	200
Park Place, 18	32
Pittendynie, Albert Road	55

	Gross Annual Value.
Pittville Crescent, 3	£50
Royal Crescent, 12	55
Sedgewood, Vittoria Walk	30
Shirley House, Pittville	90
Stantway, Clarence Square	38
St. Florence, Eldorado Crescent	80
Strathmore Villas, 1, St. Luke's	35
The Grange, Malvern Road	150
The Jessamines, Church Road, St. Mark's	20
The Rectory, St. George's Road	115
Victoria Place, 20	10
Winchcomb Street, 86	35
Wishmoor, Hales Road	75
Wolverton, Moorend Grove	54
Wych Elm, Lansdown Parade	85
York Terrace, 3	50

Slaughter-Houses.

The number of private registered slaughter-houses remains as last year, namely eighteen, and these are used for slaughtering the animals of twenty-three different firms of butchers. The bye-laws as to limewashing of walls and the removal of garbage, offal, and skins have been on the whole well observed. The visits, as hitherto, have been timed as far as possible to take place while the animals were being killed and dressed for food, this is the best time for inspection as the organs and the carcase can be examined. In a number of instances the organs of animals were found to be unsound owing to some parasitical or other local affection, and these were in each case destroyed. I have again much pleasure in acknowledging the good-will which some of the butchers have shown to the Health Department, and the ready way in which they surrendered any meat which we represented to them as being unfit for food.

List of Butchers who regularly used the Abattoir during the year.

General Butchers.

Name.	Situation of Premises.
Mr. S. J. Burrows	38, Fairview Road
Messrs. Collins & Co.	278, High Street
Mr. G. M. Davis	4, Rotunda Terrace, Montpellier Street
Messrs. A. D. & D. Downham	3, Exchange Buildings, Bath Rd.
Mr. E. T. Drew	95, Winchcomb Street
Mr. Dickinson	Prestbury
Mr. J. C. Green	102, Albion Street
Mr. Hannis	307, High Street
Mr. J. Hayward	St. Mark's Emporium, Gloucester Road
Mr. L. James	Clare Terrace, Bath Road
Mr. J. Lane	267, High Street
M. P. M. Nash	402, High Street
Mr. F. W. Pleydell	288, High Street
Mr. H. T. Pryer	308, High Street
Mr. G. Taylor	St. Paul's Street
Mr. F. Waghorne	4 Tivoli Buildings
Mr. G. Willis	Regent House, Swindon Road

Pork Butchers.

Name.	Situation of Premises.
Mr. Bradley	Winchcomb Street
Mr. F. P. Carrick	294, High Street
Mr. Mills	High Street
Mr. Smith	276, High Street
Messrs. Scudamore Bros.	91, Upper Bath Road
Mr. J. W. T. Jackson	243, High Street
Mr. Giles	Tewkesbury Road
Messrs. Locke & Sons	Clarence Street

Number of Animals slaughtered in the Abattoir during 1906 and 1907.

	1906		1907
Beeves..............	703	......	714
Calves	880	......	947
Sheep	3098	......	2712
Lambs..............	489	......	422
Pork Pigs	1069	......	1523
Bacon Pigs	91	......	137
	6330		6455

Unsound and Diseased Meat, &c., Destroyed Last Year as Unfit for the Food of Man.

3 carcases of beef—seriously affected with tuberculosis.
1 carcase of beef—extensive bruises and injuries.
4 forequarters of beef—localised tuberculosis.
12 pigs—affected with tuberculosis.
2 sheep—malignant disease.
2 boxes of cod—unsound.
1 box of hake—unsound.
1 box of plaice—unsound.
200 tins of condensed milk.
678 lbs. of jam.
2 boxes of onions.
87 tins of fish and fruit.
200 bottles of sauce.
62 sacks of potatoes.
The lungs, livers, and other internal organs of 349 animals which were locally diseased, were also surrendered and destroyed.

Total weight of meat, fish and unsound food destroyed was 7 tons 16 cwt. 2 qrs. 17 lbs. Of the four beasts destroyed, three were affected with tuberculosis in a generalised form, so that it was necessary to destroy the entire carcases and offal of them all. The fourth beast was destroyed on account of extensive bruises and injuries received whilst in transit from Swindon to Birmingham. The animal was found on arrival at Cheltenham to have fallen down in the railway truck, the other beasts having trampled upon it. Twelve pigs were found to be so badly affected with tuberculosis as to render it necessary to destroy the entire carcases and offal. In all cases discovered, the carcases or organs were voluntarily surrendered by their respective owners, and on no occasion has it been necessary to apply for a Magistrate's Order to secure the destruction of the diseased animals.

Inspection of Food Shops.

The various butcher's, fishmonger's, greengrocer's shops and other places where food is sold, were frequently inspected during the year. Small quantities of unsound meat, fish and fruit were submitted for our inspection, in each case the articles submitted were carefully examined and sorted if it was necessary. The unfit food being in all cases surrendered by the tradesmen for destruction. The following table gives some information as to the number of the various shops where food is sold in this town :

Butcher's Shops	62
Fish and Chipped Potato and Faggot Shops	13
Tripe Shops	4
Fish Dealers	21
Fruiterer's and Greengrocer's Shops ...	81
Restaurants...	12
Tea Rooms	9
Confectionery and Sweet Shops ...	104
General Shops	42
Dairies, and Shops where Milk is Sold ...	47
Provision Dealer's and Grocer's Shops ...	128
Baker's Shops	48
Ice Cream Shops	6

Inspections under the Factory & Workshops Act.

Considerable attention has been paid during the year to the administration of the Factory and Workshops Act of 1901. A large number of improvements have been effected in the workshops in the borough without having to resort to legal proceedings.

The Local Authority is the authority responsible for the sanitary condition of workshops, workplaces and homes of outworkers in their district. "Sanitary Conditions" includes (*a*) cleanliness, (*b*) overcrowding, (*c*) ventilation, (*d*) sanitary conveniences.

There are 599 workshops on the register, to which 869 visits were paid.

Cleanliness.—Fifty-two workshops were found to require the ceilings or walls, or both, cleansed and limewashed or repaired. The necessary cleansing and limewashing has been done in each case.

Overcrowding.—Four workrooms were found to be overcrowded. Notices were served to reduce the numbers in the workrooms, and these have been complied with. Forty-eight workrooms were measured up and cards setting forth the measurements have been supplied to the occupiers, stating how many persons could be employed in each workroom.

Drainage of Wet Floors in Laundries, etc.—The floors at these places were found generally to be in a satisfactory condition.

Sanitary Conveniences.—Two workshops were found to be without proper sanitary conveniences, and nine were found to have unsuitable or defective w.c. arrangements. Suitable and sufficient accommodation has been provided where necessary, and the defective water closets have been repaired and put into good sanitary condition.

Our attention has been called to the following defects in factories and workshops by H.M. Inspector of Factories :—

One factory with unventilated w.c.
One workshop with insufficient w.c. accommodation.
One workshop with insufficiently ventilated w.c.
One insufficiently ventilated workroom.
One workshop in a dirty condition.

All these defects have been remedied and notice to that effect sent to the Factory Inspector.

Homework.—The sanitary condition of the premises of workers engaged in home work is considered to be quite as important as that of workshops where a number of hands may be engaged. No less than nine sections of the Factory and Workshops' Act are devoted to regulations affecting homework. The powers referred to aim at the prevention of work being done in dwellings which are injurious or dangerous to the health of the persons working therein, *e.g.*, through overcrowding, want of ventilation, or other insanitary condition.

The homework in this district consists mainly in the making or altering of wearing apparel. The number of outworkers in Cheltenham is 126, of which 65 are tailors, 32 bootmakers, 15 plain sewing, 5 dressmakers, 5 underclothing, and 4 miscellaneous trades.

Many of the outworkers live in very good clean houses, and in six cases special workshops built on modern hygienic lines have been erected in the gardens or yards at the rear of the dwelling houses. In 25 cases the work is done in a shop specially set apart for this purpose. In 37 cases the work is done in the living room. In 33 cases the work is done in a bedroom, used solely as a workroom. In 3 instances the bedroom has been used for the double purpose of a workroom by day, and a sleeping room (usually for children) by night. I need hardly say that we discourage this sort of thing as much as possible though we have no power to prevent it entirely. Taking the outworkers premises as a whole they are kept in good cleanly condition, being also fairly well lighted, ventilated, &c.

Last year 239 visits were paid to the various homes in which work is carried on, and 31 sanitary defects were discovered and rectified. Several firms are very dilatory in supplying their lists of outworkers at the specified time as required by the Workshops' Act, although we have reminded them by special circular in January and July that it is their duty to supply such list to the local authority on or before 1st of February and August in each year. A number had to be threatened with legal proceedings before they supplied the names and addresses of their outworkers. In no instance was any case found where wearing apparel was being made, cleansed, or repaired in a house while any inmate was suffer-from infectious disease, nor was any case discovered requiring action to be taken to obtain an order prohibiting home work being done in an infected home.

Bakehouses.

These, which are likewise included in the Factory and Workshops' Act, receive special attention with us, and were all inspected last year as usual, and the requisite notices for limewashing, etc., where that had been neglected, have been served and complied with. The number of bakehouses now on the register is 52, of these, 43 are above ground and 9 are underground. The underground bakehouses have all been certified by the Sanitary Authority as being suitable with regard to their construction, lighting, ventilation, water supply, drainage, and in all other respects, having been altered and amended to the satisfaction of the Corporation as required by the Factory Act, 1901.

Report on the Administration of the Factory and Workshop Act, 1901, in connection with Factories, Workshops, Laundries, Workplaces and Homework.

1.—INSPECTION.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises.	Number of Inspections.	No. of Written and Verbal Notices.	Number of Prosecutions.
Factories (including Factory Laundries.)	18	2	Nil
Workshops (including Workshop Laundries.)... ...	793	89	,,
Workplaces (other than Outworkers' premises included in Part 3 of this Report)	129	10	,,
Total	940	101	,,

2.—DEFECTS FOUND.

Particulars.		Number of Defects found	No. of Defects remedied.
Nuisances under the Public Health Acts :			
Want of cleanliless...		32	32
Want of ventilation		4	4
Overcrowding		4	4
Other nuisances		33	33
Sanitary accommodation	insufficient	2	2
	unsuitable or defective	9	9
	not separate for sexes	...	...
Total		84	84

3.—HOME WORK.

Lists received from Employers,

	Twice in the year.		Once in the year.	
Nature of Work.	Lists.	Ontworkers.	Lists,	Outworkers.
Making and Altering Wearing Apparel...	27	126	27	126

No notices were sent prohibiting homework in unwholesome premises, and no cases of infectious disease were notified in homeworkers' premises during 1907.

4.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year.—(1).	Number.—(2).
Dressmakers	149
Tailors	90
Laundries	99
Bootmakers	60
Milliners	26
Bakehouses	52
Miscellaneous	121
Total number of Workshops on Register...	599

5.—OTHER MATTERS.

Class.	Number.
Matters notified to H.M. Inspectors of Factories...	3
Failure to affix Abstract of the Factory and Workshop Act (s. 133)	16
Notified by H.M. Inspectors	5
Reports (of action taken) sent to H.M. Inspectors	5
Underground Bakehouses (s. 101)	9
Certificates granted during the year	Nil
In use at the end of the year	9

Paving of Yards.

The importance of paving with impervious material of the ground adjoining dwelling houses, more particularly of the poorer and crowded districts of the town, is now well recognised by all sanitarians. Many of the yards at the rear of dwelling-houses are kept in a most dirty condition. In such neglected yards fowls and animals are too often kept to add to the dirt that would be there in any case, and which is trodden into the house on wet days, and blown in by the wind when the weather is fine, which settles on furniture and clothing, walls and food. It is very doubtful if any profit can be made from keeping fowls under such confined and dirty conditions, at any rate not sufficient to compensate for the unsightliness of home-made fowl houses, pigeon cotes, rabbit hutches, etc., erected in a small back yard or garden, the ground surface of which is also frequently insanitary from the animal and vegetable matter and ashes thrown down for the fowls to pick over. A fair amount of work was done in this connection during 1907, some 75 yards and areas being paved with asphalte, concrete, or blue bricks.

Common Lodging Houses.

The Common Lodging Houses have been periodically visited both by day and night, and the bye-laws have been observed in a satisfactory manner by the keepers. There are six houses on the register, providing accommodation for 142 lodgers. Two of these houses here changed hands, Cumberland House, Grove Street, being transferred from Mrs. Stroud to Joseph Dix, and 21 Stanhope Street from G. Collins to Henry Young.

Dairies, Cowsheds, and Milkshops.

Having recently obtained new regulations in regard to dairies and cowsheds, it became necessary to measure up the cowsheds existing in the Borough, and give notice to the keepers as to the number of cows that could be kept in each shed, and this was done during the year.

Special inspections have since been made of all the cowsheds with a view of drawing up a list of the work required to be done to bring these places up to the standard required by the regulations as regards lighting, ventilation, drainage, water supply, etc., and to abate any existing nuisances. All the milkshops have also been inspected twice during the year. At the last inspection of these shops the milk was found to be stored on the counter in the majority of cases in metal or earthenware pans, nearly all of which were provided with either a muslin cover or metal lid.

Six persons made application during the year for registration as dairymen or purveyors of milk, and of these five were ultimately placed upon the register, after all amendments required in sanitary conditions of the several premises had been made according to notices served upon the owners.

A. E. HUDSON, M.R., San. Inst.,

Chief Sanitary Inspector.

Reports upon Matters of Current Interest.

A Report upon the Dairies, Cowsheds and Milkshops in Cheltenham, with Recommendations as to Requirements needed to ensure a safer supply of Milk.

As milk is a food substance of wide use in Cheltenham as elsewhere it is desirable that every reasonable means should be taken here to secure it in as clean and safe a condition as is possible, and in connection with the putting into force of the Regulations under the Dairies, Cowsheds and Milkshops Order, 1879, a new set of which were adopted a few months ago. I have visited, along with the Inspector of Nuisances, all the places within the Borough where milk is produced and sold, with a view of ascertaining the present conditions and circumstances affecting the milk-supply of Cheltenham, and what action might be required to be taken to obtain compliance with the Regulations, or otherwise to insure the milk being produced and delivered to the consumer in a state as free from objection as is possible.

A. As to Milk-production:—

The production of milk as a business is carried on in Cheltenham Borough at 13 separate places, most of them being farm houses situated in the fields beyond the streets of the town but within the borough boundary. The number of cows kept vary from 6 to 80 at these several places. As to the cowsheds and the method of keeping the cows and producing the milk I have found these much less satisfactory than they ought to be, or that they can become by a change in the prevailing slovenly customs and compliance with a few rational requirements.

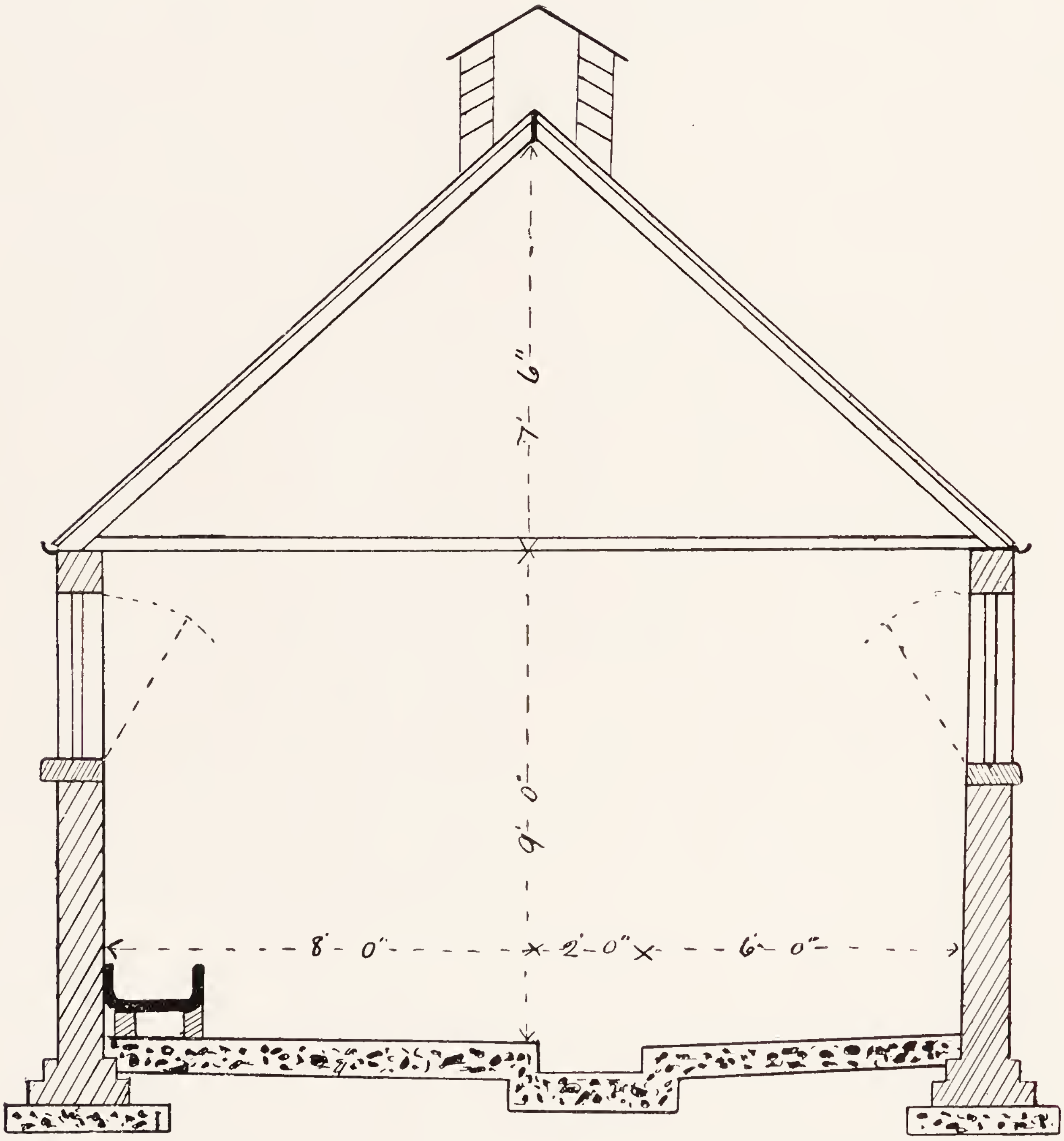
The cowsheds upon measurement have very generally been found to be more or less overcrowded. The regulations require 800 cubic feet per cow which is by no means too great a space if the air of a closed shed is be kept sufficiently pure. On behalf of those who desire to keep their cows in a more confined space it has been argued that the effects of overcrowding can be counteracted by a free ventilation. The ventilation existing, or likely to be obtained, however, in any closed cowsheds in Cheltenham is not sufficient to allow of a smaller cubic space per cow than 800 cubic feet as prescribed by the Regulations. The effects of overcrowding, including the filthiness of the floor, and of the cows must always bear direct relation to the number of cows in the shed.

The floor of the shed is frequently improper; it requires to be paved with hard impervious material, the surface to be left so even as to render cleansing easy, but the paving is sometimes found to be worn to an irregular surface, or is otherwise very imperfect and rarely laid in such a way as to obtain the best result as regards drainage and cleanliness. The standing for the cows is best elevated some inches above the part of the floor immediately behind where there should be a properly constructed gutter, so that as often as possible the filth may fall free of the cow into the gutter. Such a provision rarely obtains in existing cowsheds. The Inspector has made two plans, which accompany this report, and which show the lay of the floor of a cowshed as it ought to be. Owing to the very sparing use of litter the standing space of the cow is always dirty, the manure, &c., when removed being swept across the floor which remains wet and liable to stain the coat and udder of the cow when she lies down, The much freer use of dry litter would result in the cow getting less dirty. and is strongly to be advocated. Formerly clean litter was much more freely used, but since stubble has ceased to be available, and straw has become comparatively dear owing to less land being now in arable tillage, clean litter has come to be used very sparingly.

The ventilation of the cowsheds is frequently insufficient, and where sufficient openings have been provided, these are often found closed. One farmer in this district uses hovels of which one side is unenclosed for the shedding of his cows, and here there is no question as to the sufficiency of ventilation. He has informed me that his cows do well when kept in this manner and far from their suffering from the cold they are healthier from being so kept. The boxing up of cows in closely shut up sheds must be looked upon as an unnecessary and pernicious custom. It is altogether opposed to the precepts latterly preached, and practised with such benefit, amongst human beings. In closed sheds the ventilators which are usually provided give too small an amount of opening. The openings between the bars of gratings and louvres when actually measured usually amount to an insignificant number of square inches. Often, when larger openings are provided, as for instance by windows which open and shut, they are kept closed; in fact it is the common custom to close them on cold nights, and the only method of obtaining satisfactory ventilation is by large openings measuring several square feet which are not capable of being closed. Exits of large size can be placed in the gable ends of the sheds to second the louvres of the roof ridge, and entrance ventilation be secured by plain openings or hoppers at convenient height when the front of the shed is closed up. If there be an insuperable objection to a shed with an open front, at all events the top part of the front wall under the eaves can be left permanently open through the whole length of the shed and a good entrance of air thus provided. The front wall of the shed is not infrequently of boarding, and it is quite easy to cut away the top part for a distance of a foot or more.

The high temperature maintained in cowsheds is a matter rather of custom than of necessity. Nature accommodates itself to circumstances, and cows can easily be accustomed to live healthily in sheds in which the temperature is low, and the cowshed made warm by being closely shut up is by no means a necessity. It is necessary sometimes to guard cows against a strong cold draught, but this can often be accomplished by rendering the conditions as near like the open air as can be. A small ventilator in a bad position letting ice-cold air into a very warm cowshed may do harm, but exposure to even the strongest winds in the open, where the temperature all around is about equal does not produce the effect of draught, and it is practically impossible to get a continuous draught in a shed the whole front of which is open. If farmers in this district would try the effect of keeping their cows in open sheds from the commencement of the winter onwards, I am sure they would not find the health of the cows deteriorate, but rather the reverse. The advantage of an open shed over a closed one from a sanitary point of view is enormous. It settles the question of both light and ventilation effectively.

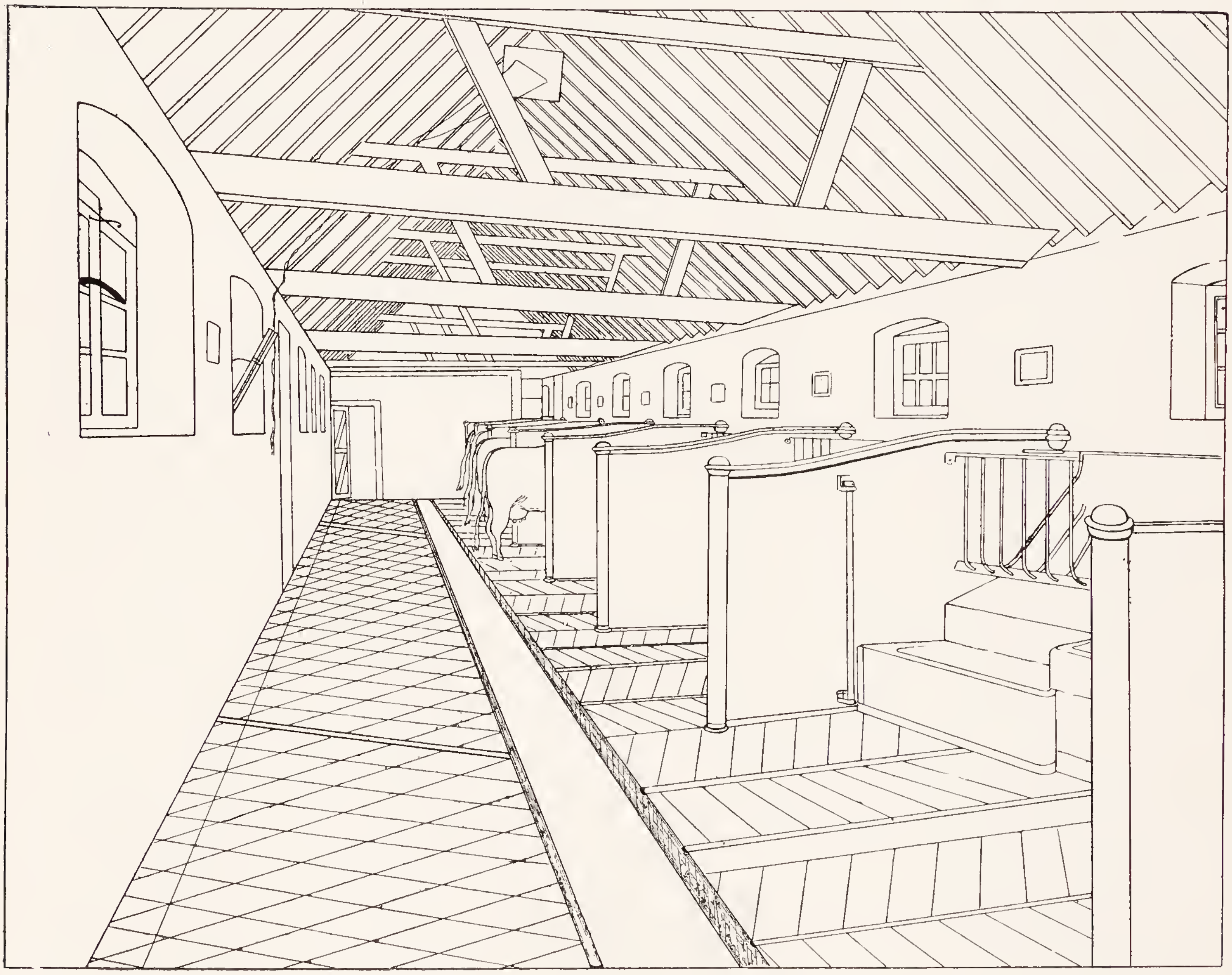
The lighting of the cowsheds is very often deficient. Rarely are the windows of such a size as to sufficiently light all parts of the shed. In many of the closely shut up sheds the interior is almost dark even in broad daylight, whereas there should be light enough for a person of ordinary vision to read a newspaper in any part of the shed in the middle of the day. Daylight costs nothing; it is but a matter of letting it in



Section of interior of Cowshed showing measurements.

by sufficiently large windows, and a sufficient number of them, when the shed is a closed one. This requires the window area to have the proportion of at least 1 to 30 of the floor space.

The Regulations require that the whole interior of the cowshed shall be limewashed twice a year, unless the treatment be by paint or otherwise which makes limewashing unsuitable. The interior of the roof which is usually unceiled is the common depository of numerous cobwebs and dust, and it is useful as a preventive of these to limewash the roof interior, and the new Regulations require it. The limewashing of the sheds serves to assist in keeping the interior sweet and clean, but is not the one and only thing required in connection with the keeping of cowsheds, as seems to be imagined by cowkeepers. Its influence upon the production of clean milk is comparatively slight as compared with other means which are connected with the condition of the cow, the milker, the floor of the shed, the milk vessels, &c.



View of interior of Cowshed showing proper floor and channel.

The condition of the approach to the shed is very important, and is very frequently unsatisfactory. The cows are usually let out of the sheds for a portion of the day, and unless the ground be paved in front of the shed, it soon becomes trodden into a quagmire, in stepping through which the cows get very dirty. At other times the sheds debouch upon a filthily kept yard full of liquid or half liquid manure, into which the cows are likely to plunge on being let out of the sheds. Generally, the farm yards into which cowsheds open are most unsatisfactory. Wherever milk is produced on any considerable scale the yard connected with the sheds should be levelled up, covered with a hard durable surface and properly drained, and no manure should be permitted to be deposited in it. The former use of these yards for the very purpose of producing manure to be placed on the land requires to be entirely changed in connection with modern milk production. At present it is common for the manure to be thrown out into heaps within a few feet of the front of the shed where it is allowed to remain and accumulate during the whole winter. This usage should not be allowed to continue. The manure must be thrown into a barrow and taken to some convenient place at a distance from the shed, and the conditions of the farm yard be kept approximately like the court-yard of a dwelling house. It is necessary to appreciate the fact that the production of milk is henceforward to be a very special business, requiring the surroundings to be perfectly clean and suitable. The keeping of milking cows must not be mixed up with the keeping of pigs and horses in or about a common dung yard as hitherto.

Very little attention indeed is given to the condition of the cow in the Cheltenham cowsheds. Usually whilst the cows are being kept in the sheds they are very dirty, and there is no pretence to clean them. Owing to the fluid nature of the ordure of the cows, it is not so easy to keep them clean, as in the case of other animals, but with very careful attention washing and grooming, and early removal of stained litter, it is possible to keep cows clean. In no place within our bounds, nor so far as I know in the neighbourhood, are cows kept in such a cleanly manner. On the contrary their condition and that of their surroundings are very commonly objects of disgust. I am told that "If I want cows kept like race-horses" the price of milk must go up. Perhaps the price of milk must go up, for much more care in the keeping of cows than is now exercised is undoubtedly required. All milking cows should be carefully cleaned and groomed.

As to the actual bodily health of the cows whose milk is yielded to be drunk by human beings, this, of course, is a matter of the very highest importance, and needs the assistance of a veterinary inspector to examine and test the cows, at short intervals, for signs of tuberculosis and other diseases, and the immediate prevention of the use for human food of the milk of any cows affected by disease, either in their udders or in their bodies at all. Whatever the cost may be initially, and it must be heavy, any rational consideration of the subject demands that it should be incurred. It must however be a national cost, falling upon the revenue of the country, for that it should fall upon the farmer is impossible, unless the price of milk were so increased as to greatly diminish the use of a most valuable article of diet.

In the handling and cleansing of milk vessels, and in the attire and personal cleanliness of the milkers much remains to be desired. The use of a furnace boiler for heating water to cleanse churns and cans is almost general, but the places where the cleaning is done is in several instances unsuitable, being too small or in use for other purposes, which is objectionable in connection with milk. The milker should also wear a clean white overall gown when milking, and his hands be washed before he begins, and the teats of the cow should be also carefully cleaned. The ultimate rinsing of the churns, cans, and other milk vessels should be done with clean boiling water, and never with cold water. Not a drop of cold water should ever be mixed with milk at the farm upon any pretence, as any germs contained in the water are likely to undergo rapid multiplication in the milk. The milk should be chilled immediately after milking, and it is customary to strain it, and the material strained out, consisting of a considerable amount of cow dung, cowhair, &c., supplies some indication of the much greater care required to be exercised in the milking process. Careful examination of samples of milk sold by retail in the ordinary way, have proved the presence of cow dung in nine out of ten of the samples.

The water supply at several of the outlying farms is unsatisfactory, particularly on the Hester's Way and Fiddler's Green side of the borough. The water in use at two of the farms is of the quality of a fairly strong mineral water and unsuitable for any domestic purpose. At other farms the origin of the water is not good, and the water is of doubtful quality. I have examined the sources of water at all the farms and append analyses of those waters that are not derived from the Corporation mains. I believe the only method of obtaining suitable water at those farms to which I have made allusion as having unsuitable supplies, is by extending a branch from our water main to supply them. The distance is, in some instances very considerable, but not so considerable as to preclude the possibility of its being done on the score of cost, seeing the importance of there being a supply of pure water available at every place where milk is produced for sale. The longest distance from an existing water main to a farm at which a supply is required is half-a-mile in the case of Elm Farm, by way of the fields.

B. As to the sale and distribution of milk.

The greater part of the milk used in Cheltenham is distributed by the producer from churns or other vessels, which are usually conveyed about the streets to the customers' houses in carts, and which come direct from the farms. About half of our milk supply is derived from farms situate outside the borough boundary, chiefly in the neighbouring small urban disrict of Charlton Kings, and the Rural District immediately surrounding the town.

There are 47 shops in Cheltenham in which milk is kept for retail over the counter, the proprietors being all registered as purveyors of milk. Only 18 of these 47 are proper dairies or places in which the business is nearly limited to dairy products. The rest to the number of 15 are grocers, or greengrocers' shops, 6 coffee taverns and refreshment places, 7 confectioners, &c., and 1 a corn merchant. In these various shops the milk is kept, most usually upon the counter, occasionally on the shelf in the shop, or in a room adjoining the shop. The daily quantity of milk sold in these shops varies from a minimum of 2 quarts up to a maximum of 8 gallons, but the average daily sale is only 2½ gallons per shop. That there should be so many places where milk is kept in open vessels for retail in this manner is to be deplored, especially when all the risks that are run of contamination of the milk are taken into consideration. At present there is no bar to milk being sold in any place, and in connection with any other business, so long as no fault can be found with the sanitary condition of the premises, and the Regulations as to the sale of milk are complied with. The retailing of small quantities of milk from so many and such unsuitable places is however distinctly prejudicial to the public welfare, and a law is required to prevent it, as by placing in the hands of the local authority a power to require that persons selling milk shall be required to obtain a licence, renewable annually, the licence to be withheld according to the discretion of the local authority as advised by the Medical Officer of Health. Whilst this power is wanting we can only do our best to discourage people endeavouring to increase their incomes by a few pence per diem by adding the retail of small quantities of milk to their other business.

The fact of half of the milk supplied within the borough being brought in from outside by farmers, over whose places we have no control, is unsatisfactory in view of the fact that the governing bodies of those outside districts are very lax in the supervision of the cowsheds and dairies for which they are responsible. Most or all of these outside local authorities have recently adopted Regulations under the Dairies, Cowsheds and Milkshops Order, but to adopt them is one thing and to put them in force is another. They are not likely to be put properly in force anywhere excepting as the result of determined effort on the part of capable officers, who, should they make the necessary effort, are likely to be met, as they often have been, with obstruction from members of their Councils interested directly or indirectly in the dairy industry.

The distribution of fresh milk in sterilised bottles and other closed vessels filled at the farms is likely to prevent a good deal of accidental contamination, and fresh milk can be ordered from several of our larger milk purveyors to be delivered in this manner. The use of bottles requires special facilities for cleansing and sterilising the bottles, and, on account of loss and breakage of bottles, a little more must be expected to be paid for the milk. The same may be said of pasteurised and sterilised milk, for the preparation of which two firms in Cheltenham have extensive plant. Numerous applicants who keep small general shops and who have made application to be registered as milk purveyors have been advised to limit their dealing in milk to bottles of sterilized milk, which cannot come to much harm so long as they remain properly stoppered. Sterilized milk that has been long kept in bottle is however not the same as fresh milk, and I would advise the ordinary householder who desires to get the safety derived from sterilization to obtain fresh milk from a reliable dairy and heat it after delivery. The greater part of the milk used in family consumption is, as a matter of fact, sterilized by cooking, and the remainder may be rendered germ free by raising it to near the boiling point of heat for a few minutes. For the ordinary consumer raw milk possesses no advantage over heated milk, and in the matter of every day diet common experience seems to have led to a preference for milk cooked in some form or other. The occasional development of a condition resembling scurvy that has been noticed in infants fed for a prolonged period upon nothing else but sterilized cow-milk may be due to something that is lost to milk upon heating it, possibly to the loss of certain living germs. But if it were quite certain that the limitation of the diet of an infant to sterilized milk for a few months were detrimental, the moral would rather be don't limit the diet to sterilized milk, rather than don't use sterilized milk at all. Raw milk however is the natural diet of the infant, and raw cows'-milk would be better than sterilized milk if it could be obtained pure. At the present time, however, considerable doubt must be attached to the purity of all milk.

Finally I advise that a copy of this report be sent to each cowkeeper in the district along with a list of the things actually required to be done at his particular place to make compliance with the new Regulations, and that advice be at the same time given him as to anything else which appears to be requisite to be done by him in the interests of the milk consumers. I also advise that notice be served upon the owner and occupier of each farm at which milk is produced for sale, and at which there is no sufficient supply of pure water, to make such a supply forthwith.

Summary of Requirements to be Observed by Cowkeepers.

In connection with the keeping of cows the following may be taken to indicate the requirements that must be carried out, and I advise that notices upon these lines be served in regard to each cow shed in this district. The paragraphs below, numbered 1 to 10, should be studied by cowkeepers and remembered as the ten commandments relating to their trade.

Outside the Sheds.

(1) As to the condition of the yard into which the sheds open, and if no yard then other approach to the sheds, and as to removal of manure :—The yard to be levelled up to a hard surface, well drained, and kept clean, and not to be the depository of manure.

The approach to the shed (where not a yard) to be levelled and drained and the surface made so hard for a distance of at least five yards from the front of the shed as to prevent it being trodden up in the wettest weather by the cows in passing over it.

The manure to be taken away from the shed and deposited in a suitable place at a distance of not less than 15 yards from any entrance to the shed.

Inside the Sheds.

(2) As to space and ventilation :—The space required by the Regulations is 800 cubic feet for every cow in a cowshed. The ventilation to be by permanent unclosable openings equal in the clear to at least one square foot of inlet, and one square foot of outlet per cow. The inlets to be at a sufficiently low level, and the outlets at a high level in the shed, and so placed as to lead to a through current of air. These permanent openings may be by

open spaces at the top of the front wall of the shed, which, when of wood, as is often the case, may easily be provided by sawing away the top 8 or 12 inches of the boarding, or sawing away the tops of the doors to a like extent, and any other device as by Tobin's tubes or permanently open hoppers is permissable for inlets ; whilst for outlets louvres upon the roof ridges, or openings in the gable ends of the sheds will be found convenient. This permanent unclosable ventilation to be seconded by other means of ventilation, as by open half-doors, windows made to open, &c. A trial of open hovels for keeping cows is strongly recommended.

(3) As to lighting : For closed sheds the windows or direct openings capable of admitting light should have a relation by measurement to the floor area of 1 to 30.

(4) As to the condition of the floor of the shed : The floor to be evenly paved, channelled, and drained. The opening into the closed drain to be outside the shed. The standing for the cows to be elevated to a length from the manger backwards of 6 feet, and to end in a channel 6 inches deep and 2 feet wide to catch the dung and urine.

(5) As to water supply : Every cowkeeper to be called on to provide a sufficient and suitable supply of water for all purposes in connection with the cowshed at all times.

(6) As to cleansing of shed : The standing for the cows to be kept clean by use of sufficient litter, and removal of manure at frequent intervals. The channel behind the standing to be swilled clean twice each day. To effect this purpose, a hose pipe with water under pressure should be in use wherever possible.

(7) As to limewashing : All parts of the interior of the sheds, including the interior of the roof, to be limewashed at least twice in the season during which the sheds are in use.

(8) As to cleansing of all milk vessels and utensils : The regulations to be strictly enforced as regards the provision for cleansing all milk vessels with clean boiling water after each time of use.

(9) As to the condition of the milker : The milker to wear a clean over-all gown, and his hands to be washed on every occasion before milking.

(10) As to cleansing the cow : The cow's teats to be cleansed before milking, and the cow's body to be kept clean by grooming.

[Notices in regard to the above will be served later. Work should not be begun without advice first being taken at the Health Department, Municipal Offices.]

J. H. GARRETT,

December 23rd, 1907. *Medical Officer of Health.*

Analyses of Waters supplied to Farms in the Borough of Cheltenham at which there are Cowsheds where Milk is produced for Sale.

(Other Farms are supplied from the Corporation Mains.)

Name of Farm.	Elm Farm.	Hester's Way.	Harthrust-field.	Harthrust.	Whaddon.	Oakley.	Priors.	Lower Hewletts.	Arle Court Farm.
Source of Water	Well with common pump.	Well with common pump.*	Well with common pump.	Well with common pump.	Well with common pump.	Spring on Hewlett's Hill carried in pipe to house not far from cowshed.	Small brook under Hewlett's Hill carried in pipe to cowshed.	Spring on Hewlett's Hill carried in pipe to cowshed.	Well with common pump at Mr. Brown's house.
Distance from Cowshed	33 yds.	150 yds.	80 yds.	20 yds.	25 yds.	...	...	...	*
Total Solids	605	802	129	191	91	38	57	48	49
Chlorine (Cl)	27	144	11	27	6	1.4	5·2	2.8	2·0
Nitrate (as H NO$_3$) ...	none	none	17	4	.07	6.25	5.25	.10	6·5
Nitrite	trace	none	trace	none	slightest trace	slightest trace	none	slightest trace	none
Free Amonia... ...	.002	.520	.012	.002	.001	.000	.000	.000	·005
Organic Ammonia ...	.006	.035	.014	.005	.004	.004	.004	.003	·001
Remarks	Water has character of a mineral water. Defective drain passes near well.	Water has character of a mineral water. Cows drink from dirty pond.	Well situated near open pond from which it derives its water. Water said to pass through a rough filter.	Well situated not far from polluted brook from which it probably derives its water.	Water from town main could be easily laid on here and would be a great acquisition.	This water is not taken from spring head and has probably been exposed before being picked up. It would be better filtered.	This brook water in large part spring water but is exposed to open fields and receives surface drainage. It should be filtered.	This appears to be a very satisfactory water.	This water used for washing cans and domestic use. Town main near at hand.

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* At Hester's Way Farm there is a second well, said to be partly filled from the house-roofs. It contains a quite impure water. At Arle Court Farm there is another water laid on in a pipe to the yard near the cowsheds, and said to be derived from the Chelt. This might be used for such rough use as washing the cowshed floor.

The details of the inspections of cowsheds in the borough are carefully preserved for future reference. In accordance with the defects discovered specifications for work required to be done were drawn up and presented to the Public Health Committee, a considerable number of whose members visited the cowsheds, and were so able to compare the actual conditions with the specifications. The Committee subsequently directed that these specifications should be served upon both owners and occupiers ol the cowsheds in the form of notices, three months' notice from the date of service to be given to carry out the work. The requirements are demanded in pursuance of the powers given by the nuisance sections of the Public Health Act, and by those of the Regulations under the Dairies, Cowsheds and Milkshops Order.

The following is a specimen notice with specification of required works, being one of those above referred to.

The other items of improvement required, such as cleansing the cows and the wearing of over-all gowns by the milkers, will be attended to as the result of request and constantly repeated inspections, if not, the public will be informed of the cowkeepers who do, or who do not, comply with such simple requirements for the protection of their milk from contamination by filth.

The question of the water supply to the farms where the quality of the water is deficient is being made the subject of negociation between the Corporation and the owners of the farms, and I hope that branches from the town mains will be extended to each of these farms. I have reported specially upon the subject recommending this to be done.

Specimen Specification of Alterations required at Mr. ——'s Cowshed.

Yard Paving.

Take up existing paving, excavate, remove surplus soil, and prepare surface of yard to suit intended level. The whole of the yard to be paved with a hard, durable and impervious pavement of paving bricks laid on edge, York setts, or granite setts, evenly and closely laid upon a bed of good Portland cement concrete, at least four inches thick, and bedded and jointed in mortar, and grouted in cement, or other approved form of paving. The yard to be sloped so as to effectually carry off all rain or waste water therefrom to a gully trap. (This was a small yard exceptionally dirty and ill drained).

Drainage.

To provide drainage to cowsheds, lay on a 6in. bed of Portland cement concrete a new drain of 6in. in diameter salt glazed stoneware pipes. The pipes to be laid with a proper fall and equal gradient throughout, and to be connected to existing cesspool in field. The joints of drain to be made with Portland cement, care being taken to remove all superfluous cement by carefully cleaning out each pipe as it is laid. A cleansing eye to be provided at the head of each branch drain.

At the head of drain fix a 4in. in diameter heavy cast iron vent pipe, coated with Dr. Angus Smith's solution to prevent corrosion. The pipes to be continued up full bore 3ft. above the eaves spouting of stable and to have a domed wire guard on terminal. The joints to be run with lead and caulked.

Provide and fix in a suitable position a disconnecting trap of the Buchan or other approved similar type, and from the top of same carry a fresh air inlet pipe shaft to a suitable position.

Fix close to each surface channel from cowsheds a circular gully with grating, dishstone and mud bucket, 9in. in diameter and 4in. outlet Two square gulleys 9in. by 9in. with iron mud bucket and wrought iron surface grates to be fixed in yard to take surface water.

Floors of Cowsheds.

The standing place of the cows to be raised in all the cowsheds. Form a manure channel at the heel of the stalls. The stalls to be 6ft. long, measured from manger to channel. The channel to be 2ft. wide and 6in. deep, with a fall from each side to its centre, and formed of hard paving bricks bedded and jointed in mortar, and grouted in neat cement, or with Portland cement concrete composed of one part of cement to five parts of broken bricks or stone. The concrete to be 6in. thick, rammed solid and to be finished off with a layer of fine granite concrete about 1in. thick, composed of one part of Portland cement to two parts of granite chippings. The chippings should be small enough to pass a $\frac{3}{4}$in. mesh, and screened or washed free from dust. The channel to be carried from one end of the shed to the other, having a fall of 1 in 90, and terminate outside the wall on to the gully berore mentioned. Water under pressure to be laid on at the head of each channel for flushing purposes.

Ventilation.

Lower Shed. The window and shutter openings in the front wall to be left open permanently, these will give the amount of light and inlet ventilation required for this shed.

Outlet ventilation to be provided by fixing in ridge, wooden chambers with louvred sides, or circular zinc shafts, or an opening at the top of gable end of wall, the outlet openings to be equal in all to six square feet.

Top Shed. Inlet ventilation can be provided by permanently opening two of the shutters in the external wall.

Outlet ventilation to be provided as for Lower Shed.

Lighting.

Sufficient light can be obtained by the aforementioned ventilating inlet openings and by removing the upper portion of cowshed door, otherwise window area equal in all to at least one thirtieth of the floor space to be provided.

Water Supply.

Lay on a constant supply of water direct from town main and fix in a suitable position in cowsheds $\frac{1}{2}$in. screw down bib taps.

Cleansing.

All walls and ceilings to be cleansed and limewashed.

Manure Place.

Manure to be removed to a distance of at least 15 yards from door of cowshed, and to attain this object take down a portion of the wall abutting on to field at the end of existing dung heap, and form an opening 4ft. 6in. wide into field. The end of the walls to be trimmed off and left square.

A Report upon the Hygienic Condition of the Elementary Schools of Cheltenham at the present time (October, 1907), being a Supplement to a Report upon the same subject written, in 1905, by the Medical Officer of Health.

To the Sanitary Authority of the Borough of Cheltenham.

GENTLEMEN,—

The Education Committee have sent me through their Secretary a minute passed by them to the effect that my Department be asked to report further as to the present sanitary condition of the Schools and to take action where necessary to obtain compliance with the requirements mentioned in my former report where these are found uncomplied with.

I may note that up to the present I have no professional connection with the Education Committee, and that the somewhat exhaustive Report of 1905 referred to was a voluntary one made upon my own initiative, though with a view to its being of use to the Education Committee. It was presented to yourselves, and referred by you to the Education Committee.

When I made that Report I had in mind the powers given to the Education Authority by Sec. 7 (d) of the Education Act, 1902, which imposes upon the managers of the school a duty to "keep the schoolhouse in good repair and make such alterations and improvements in the buildings as may be reasonably required by the Local Education Authority." The numerous recommendations of the Report could not be carried into effect by notices from my department ; there is nothing in the Public Health Acts affecting schools in particular, but only the ordinary nuisance sections to fall back upon, and these are not sufficiently specific and embracing to cover the requirements of my Report. If it had been otherwise the action of the Education Committee would have been superfluous in the matter. But after waiting some time to see what action the Education Committee would take I went carefully through the Report and picking out all the things which I deemed could be dealt with by my department. I brought these before the Public Health Committee, who gave the necessary instructions for action to be taken, and by letter or notice to the managers of the schools affected compliance with those particular requirements was obtained long since.

At the time that my Report was issued, in 1905, the Education Committee sent to the managers of each school dealt with in the Report, a copy of the recommendations, &c., contained in the Report which pertained severally to their schools, and in the reinspection of all the now existing schools which I have just made, I have been pleased to find that in some instances the managers took notice of the requirements mentioned in the Report and have done something towords carrying them out. In other instances nothing, or very little, has been done, and in most something more might be done, but it is for the Education Committee, and not for the Sanitary Authority to make the demand for the work to be done.

I have taken note in respect of each school of the things mentioned in the former Report which have been done or left undone, and at the end of this Report will be found my notes in this connection. I also offer the following brief general comments upon the present condition of the schools.

The town is to be congratulated upon having got rid of six of the most objectionable school buildings mentioned in my former Report, these having been closed as schools and accommodation for the scholars provided by the building of three new schools, namely, those in Gloucester Road, Naunton Park, and at Leckhampton. These in their greater space, better sanitary conditions, and modern conveniences are an immense advance upon the old places which have been put out of use, and must be of corresponding benefit to the health and well-being of the children.

Second to the benefit derived by the measure of abolishing unsuitable buildings is that resulting from the conversion of old existing buildings by extensive alterations into a much more suitable form for school use. The Dunalley St. Council Schools and the St. Luke's Schools have been so dealt with and thereby have been vastly improved. And thus by abolition and conversion one-third of all the schools formerly existing in the borough and which were mentioned in my 1905 Report have been radically dealt with.

In connection with many of the old schools remaining, I regret that the Education Committee has not seen fit to have all the old unsuitable desks replaced in every school where they exist with modern desks. The strained, unnatural, and tiring attitudes which have to be adopted by the children using the old desks are very likely to lead to unequal growth of their bodies, besides rendering it difficult to properly do their tasks. Some of the old desks have, no doubt, been in use for generations, and belong to the make-shift era when it was a charity to provide any education at all, and when it was considered that the children should be thankful for whatever was imposed upon them. In the matter of desks the Cheltenham school children should at once receive the benefit of modern thought and invention.

The concreting of the ground area of the old schools has been generally neglected. This, no doubt, appears to many to be unnecessary, but in my opinion the ground air should be excluded from the school. No house can now be built in Cheltenham that is not so treated, and surely if it be desirable for the dwelling house it is desirable for the school.

The general recommendations that the schools should be more often and more regularly wet cleaned has received little attention. In a good many of the schools the cleaning is done in the holidays only—perhaps three times a year.

The care taken as to the condition of the closets is very commonly insufficient. The closet apartments and approaches thereto and the urinals and their approaches are often only roughly swilled down and left all wet. Filth is consequently trodden all over the place. These places should be kept dry, the approaches being invariable roofed, but at the same time freely ventilated. In order to keep the floors of the urinals as dry as possible they should all be stalled with good broad partitions. Expense should not be spared in providing the best urinals that can be obtained, *e.g.*, those of glazed stoneware such as those in use in the town urinals, and always stalled—one space for one boy—and boys should be lectured upon using them in a cleanly way, and the fact pointed out to them that unless careful they will carry the urine on the soles of their shoes into school. For want of covering, in wet weather particularly, the urinals are apt to get into a disgusting state. The closet seats require to be cleaned with water, brush and cloth *every night*, and each apartment at the same time cleaned out with a floor cloth. Swilling should be forbidden. The closet seats are not infrequently in a filthy state. Children should be peremptorily forbidden to stand on them, but this cannot be enforced unless they are kept clean enough to sit upon. I think the Education Committee should see that it is the fixed duty of someone to attend to this matter in each school. No doubt it will be said that there is someone to do it for each school. Generally speaking, however, it is not done well enough.

The provision of permanent ventilators in all the schools was advised in accordance with the rules of the Board of Education. These have only been provided in one or two schools. They ensure a certain amount of opening at all times, though not of themselves providing sufficient ventilation, the main ventilation being through the windows. It has recently been shown that where cross ventilation of a schoolroom can be obtained, *i.e.*, where the opposite walls of the room are both free to the external air a much more efficient ventilation can be obtained than when this is not the case, and the building of new schools in accordance with designs effecting this purpose has been advocated. In some of our old schools the air is kept fresh by freely opening the windows, and where intelligence in this connection is displayed there is perhaps little need for the comparatively small amount of *permanent* openings which the Board of Education rules require. In some of the schools additional window openings have been provided, and the want of ventilation in the old schools which remain is not now nearly so marked as at the time of my former report, but still, in summer time especially, a greater amount of window opening than is available would be beneficial to several of the schools.

The following notes show what part of my recommendations have been carried out and what left, each school being taken in the order of my last Report:—

All Saints' Schools—Compliance: Number of closets increased and greater urinal space provided. The new closets are of better kind. As to more heating in baby's room, the infant department is done away with at this school.

Non-compliance : Trough closets remain in use and give off considerable stench. Ventilation of closets and approach thereto insufficient (girls' side). With better closets, *i.e.*, pans individually flushed, more ventilation probably not required. Defective ground surface of gangway to these closets not attended to. Closets require limewashing. No part of playground covered. Stuff curtains are still used in class rooms. There is a tendency still to overcrowd No. 2 class room. It was overcrowded at time of visit. (Since this Report was presented the trough closets have been abolished).

Baker Street Schools—This is one of the schools closed.

Christ Church Schools—Compliance : Carpenters' shop ventilated. A little more ventilation made in Infants' main room.

Non-Compliance : No part of playgrounds paved or covered. W.C. for teachers not provided Urinals not well flushed, not stalled. Heating as before with iron stoves, no new method of heating adopted. Ventilation as before excepting for some small hoppers put in upper part of windows in Infants' main room. Stuff curtains to divide room still in use. Old desks.

Coltham Fields School—This is one of the Schools closed.

Dunalley Street Council Schools—These schools have been remodelled and converted into girls and infants' schools only. Most or all recommendations complied with. Playground remains small however and no part is covered.

Holy Trinity Schools—Compliance : Heating by hot water throughout said to be satisfactory. Overcrowding completely abated by re-arrangement of classes, &c. Ventilation seems sufficient. New modern desks have been provided.

Non-compliance : Closets on girls' side consisting of troughs have not been converted into wash-down pans, individually flushed. Cloak-rooms still a weak feature, not warmed. (Since the date of this inspection the remainder of the closets have been converted into wash-down pans and I understand alterations in the cloak-rooms are about to be made. The admirable improvements effected show how much can sometimes be done to render an old school efficient.)

The *Leckhampton Schools* have been replaced by new schools.

Milsom Street Council Schools—This is one of the schools closed.

The *Parish Church Boys' School*—Compliance : Members attending diminished, overcrowding abated. Provision of closet and urinal accommodation increased. Iron stoves replaced by open grates. Permanent ventilation provided by Tobin tubes. The large room has been divided by one solid partition. The former condition as to lavatory basins has been altered and new basins placed in a different position.

Non-compliance : The cloak room remains a weak feature. The playground remains too small and no part is covered. In this connection it would be well to remove the carpenter's shop. The old pump remains The closet seats and floors are badly kept. The teacher's closct has a defective seat. The coal house at the Master's house is in a tumble-down state and a proper outhouse requires to be built. A defective w.c. and soil pipe are now discovered in the Master's house (for this last a notice from this department will be served.)

Parish Church Girls' School—Compliance: The catchpits in the playground have been removed and the drain made good. The waste pipes of lavatory basins have been trapped and the insanitary lead trough beneath them removed.

Non-compliance: The heating of the school is as before. The ventilation is unaltered. The windows of large class room in particular require to be altered to give more openings. The lighting is as before, the infant school being the chief sufferer. Staircase and cloak room as before. Old fashioned bad desks in general use. Trough closets still in use and further impress one as being improper, evidently not flushed with sufficient frequency.

St. Gregory's School—Compliance: Condition of closets improved and apparently better kept. Obstructions to entrance of air by existing Tobin tubes removed and ventilation thereby improved and seemed sufficient at time of visit. Cement covering to base of external walls renewed.

Non-compliance: Size of playground as before. The infants' urinal has had flushing apparatus affixed but the work has been badly done, and the water runs over the standing-place of the urinal. Urinals not roofed or divided into stalls. Old style desks in use.

St. James' School—Compliance: The heating of the school has been improved by putting in new and larger boilers, but in cold weather parts of school are still insufficiently warmed, particularly on boy's side. Lighting in places somewhat improved by substituting large clear frames for the diamoned latticed panes.

Non-compliance: The floor gratings beneath which run hot water pipes are still all open excepting in girls' department. The ventilation of the class rooms is insufficient. The girls' class room was close and overcrowded at time of visit. The cloak rooms and lavatories remain a weak feature. Old style desks in use. The playground is as before excepting that the part asphalted is now in a rough state. Whole area should be well asphalted. No part is roofed. The trough closets remain, and though the troughs have been kept tarred and attention given to them they should be replaced by pan closets individually flushed.

St. John's School—Compliance: the new w.c's. and urinals which were in process of erection at time of last report have been finished. New lavatory accommodation has been provided, and there is better cloak room provision. The windows have been overhauled and made to open. Cleaning appears to be better done. Wet cleaning once a month.

Non-compliance: The playgrounds have not been asphalted but levelled and made with gravel surface. No part roofed. The open gratings of underground hot water pipes still collect dust. The heating is as before. The lighting of infant main room is still deficient. The ventilation is as before. Old desks still in use.

St. Luke's School—All recommendations have been carried out excepting that infants' class room (which now has a very small use) is still heated by iron stove. The uncovered brick ashpit in playground remains, and the external walls have not been repointed, which last is a matter affecting the preservation of the building rather than of urgent sanitary import.

The architect has been very successful in remodelling this school, which from its uncouth shape, &c., appeared to me to be a difficult business. The sanitary conditions, ventilation, heating, lighting, concreting, flooring, &c., have undergone such radical alterations as to bring this school well up to the average of suitability for educational purposes.

St. Luke's (Naunton), Infants' School—This is one of the schools which has been closed.

St. Mark's Boys' School, Roman Road—Compliance: The drains have been tested, condemned, and renewed. The trough closets have been converted to wash-down pan closets, individually flushed, and the apartments limewashed. The urinal is now flushed. The brick ashpit has been abolished and a galvanised iron bin provided.

Non-compliance: The playground remains as before not being asphalted or any part covered. The heating of the school is inadequate as before. Ventilation of cloak-room unaltered. Old form of desks in use.

St. Mark's Girls' and Infants' School, Alstone—Non-compliance: The conditions remain just as at time of last Report.

St. Mark's School, Hatherley Lane—Non-compliance: The conditions remain exactly as at time of last Report.

St. Paul's Practising School for Training College—Compliance: Everything mentioned as being required has been carried out with the one exception that no part of the playground has been roofed.

The urinals are, however, a weak feature for a school that is supposed to be worked under model conditions, and it would be an advantage to replace the slate slabs, which are somewhat fouled, with glazed stoneware stalls.

St. Paul's Girls' and Infants' Schools—Compliance: A closet for teachers' special use has been provided, but at cost of one of the apartments formerly open to the school. The condition of the closets was better than at former visit. The hot water pipes have been increased as recommended in No. 2 main room.

Non-compliance: The number of closets has not been increased. No part of playground is covered by roof. Lighting and ventilation of cloak rooms is still deficient, and the damp porch is still used to hang up teachers' hats and coats, &c.

St. Peter's Boys' School—Compliance: Playground has been asphalted over a portion of its surface, the rest gravelled. Condition as to w.c.'s is improved. The urinal has been altered, and though not model is better (boys require to be directed to keep the floor dry). The large room has been divided by one solid partition.

Non-compliance: Heating of school still decidedly deficient. Two gas stoves, without flues, have been introduced into largest room. This is a very improper provision. One stuff curtain to divide schoolroom is still in use. Old stone trough with drinking tap remains in carpenters' shop. Provision of lavatory basins discharging into urinal as before. Ventilation of cloak room as before. Old style of desks remain.

St. Peter's Girls' and Infants' Schools—Compliance: Playground has been asphalted all over. Movable solid partitions have been introduced to divide the large room. The infants' urinal appears to be better flushed.

Non-compliance: Heating by iron stoves continued and deficient as before. Ventilation in infants' cloak room, &c., as before.

St. Philip's Schools—Compliance: The overcrowding has been abated by removing the boys' department to a new school. The upstairs schoolroom, formerly used by the girls, has been discarded for school use, and the girls now occupy what was formerly the boys' school.

The lighting has been a little increased by taking away the latticed window panes and substituting large panes of clear glass but is still poor. Internal walls of main room have been plastered and colourwashed.

Non-compliance : The size of the playground remains the same and is not asphalted and no part covered. The w.c.'s to date remain quite inadequate in number and are of the most objectional trough form.

The cloak rooms remain a weak feature. No proper lavatory has been provided. The uncovered ash receptable remains. The mode of heating is as before and cannot be considered satisfactory. Ventilation as before.

The Wesleyan Schools, Gt. Norwood Street—These schools are amongst those that have been closed.

◆

A Report as to the Notification of Births Act, 1907.

I have to advise that this Act has been passed with the object of reducing infantile mortality. Provision is made for notification to the Medical Officer of Health of each birth taking place in the district within 36 hours of the birth taking place, and the object of this is to enable such action being taken as is calculated to prevent the early death of the infant through bad management in regard to feeding and general care The Act is adoptive and the adoption requires the consent of the Local Government Board. The Local Government Board has sent out a circular letter stating that they will withhold consent unless satisfied that the Council proposing to adopt the Act intend to make it effective. The powers conferred by the Act would, without doubt, be most useful in any attempt made to reduce mortality of infants whose lives it is desirable should be saved. At present we get no record of the births having taken place until some weeks after the event, usually from 4 to 7 weeks after, and a considerable proportion of the infants born are dead before we hear of the birth, and in regard to the infants remaining alive it is too late to begin to advise as to their care and management.

The advantages to be derived by the adoption of the Act, would be obtained by visits made to the house by a trained lady inspector, who would give friendly advice upon the spot and detect any flagrant neglect likely to injure the chances of infant life.

There are about 1000 births per annum in Cheltenham, and a very large percentage of these take place in small houses. My last Annual Report shows that there were within the year in Cheltenham 995 births and 131 deaths of infants under one year old. I should say that at least 500 of the infants born in each year would be the better for the attention of a lady inspector. There is much other work in connection with the mode of living of the poor, and the manner in which their houses are kept, that would occupy any spare time of a lady inspector, whose first duties were connected with the notification of births in Cheltenham. Lady inspectors have been appointed in many towns with great advantage, and ample employment that would result in the betterment of poor houses, the saving of infant life, and the lowering of the general death-rate, could be found for one here, it is consequently my duty to stronly recommend the adoption of the Notification of Births Act, and the simultaneous appointment of a lady inspector.

Nothing has been settled up to date in regard to this matter. It was suggested that as lady health visitors would be required in connection with the new work of Medical Inspection of School Children, possibly the visits which would be required were the Notification of Births Act adopted could be made by a visitor appointed by the Education Committee for the school work, the Sanitary Authority paying a part of the visitor's salary if it were necessary to keep the expenditure for the two purposes distinctly separate. But the Inspection of School Children is itself not yet arranged.

The Question of Private Sewer Ownership in Cheltenham.

Nothing was done last year by the Corporation to acquire that part of the sewerage system of the Borough, chiefly known as the Tivoli sewers. This matter of private sewer ownership has been the subject of report by myself for many years past, and once last year and once the year before the Local Government Board wrote to the Corporation asking to be informed of what was being done in regard to these sewers, which are defective and not under the control of the Corporation. I believe the position to be briefly as follows. When these sewers were made, now many years ago, the owners of the sewers bound the owners of the houses served by the sewers by agreement to pay an annual rent for the use of the sewers. According to a report made by the former Borough Surveyor after an extended examination of the sewers, these sewers are now and have for some years been defective, and require renewal. According to an estimate made by the same Borough Surveyor the cost of necessary renewals would amount to between £2000 and £3000. According to the estimate of our former Town Clerk made at the same time upon data which he obtained, the capital sum represented by the rent charges collected is also equal to between £2000 and £3000, which would seem to indicate that the present value of the sewers is nil, or nearly so. The Cheltenham Improvement Act, 1852, provides that the Corporation shall have power to call upon the owners of the private sewers to make necessary amendments, and failing their compliance the Corporation can do the work, the cost of which is ultimately to be recouped by a cessation of payment of the rent-charges to the proprietors of the sewers for as long a time as necessary for such purpose, but the manner in which the cost is thus caused to fall upon the sewer owner is difficult and complicated.

This statutory liability would have to be taken into account in any settlement that might be come to between the Corporation and the sewer owners for the sewers to be made to vest in the Corporation, which is what is really required, and this presumably is the reason why the sewer owners have not agreed to submit the matter to arbitration, and there is no power to compel them to do so. Whatever the difficulties may be there is no reason why they should not be dealt with, while on the other hand the defective condition of the sewers should cause prompt action to be taken in the matter.

Sale of Foods and Drugs Act.

Return of Articles submitted to the Public Analyst during the year 1907, with the results of the Analyses.

(G. Embrey, Esq., Gloucester, Public Analyst).

Samples submitted by Superintendent A. W. Hopkins.

Quarter ending 31st March.

	Articles submitted.	Result.
1	Sample of	Butter, genuine.
1	,,	Gin, genuine.
5	,,	Milk, genuine.

Quarter ending 30th June.

2	,,	Arrowroot, genuine.
5	,,	Butter, 4 genuine, 1 with 26% of water instead of 16%. No proceedings advised by authority.
5	,,	Milk, 4 genuine, 1 with 66 % fat abstracted, fined £1 and 18/6 costs.
3	,,	Pepper, all genuine.

Quarter ending 30th September.

No Samples taken.

Quarter ending 31st December.

12	,,	Milk, all genuine.

ANNUAL REPORT

UPON THE

Meteorology of Cheltenham,

BY

MR. A. C. SAXBY,

F.R. MET. SOC.,

BOROUGH METEOROLOGIST,

FOR THE YEAR 1907.

Latitude 51° 53′ 45″ N. Longitude 2° 3′ 21″ W.
Height of Barometer above Mean Sea Level 206ft.

THE INSTRUMENTS ARE ALL OF THE HIGHEST QUALITY,
AND HAVE BEEN VERIFIED AT KEW.

To the Mayor, Aldermen, and Councillors of the Borough of Cheltenham.

GENTLEMEN,

I have pleasure in submitting to you my Annual Report for Cheltenham during the year 1907, being the 30th year during which records have been taken.

The instruments are as previously, and all in good working order.

The observations have been taken twice daily by myself or qualified Assistant. The Sunshine Recorder at Pittville has been very carefully attended to by the Head Gardener, the Charts being brought in with regularity. The Anemometer in Montpellier Gardens has been attended to and oiled periodically.

Mr. W. Marriott, Assistant Secretary of the Royal Meteorological Society, paid an official visit in July for the purpose of inspecting the Station and checking the Instruments. He found everything in good order, but the Minimum Thermometer had slightly altered since his last examination, and due allowance is now made in correcting the readings. He was pleased with the situation of the Campbell Stokes Sunshine Recorder, the position on the lantern of the Dome at Pittville being better than the base of Dome as formerly.

The Weekly and Monthly Reports have been sent to the Royal Meteorological Society as formerly.

The Weekly Reports have been published in the "Cheltenham Examiner," "Gloucestershire Echo," "Cheltenham Chronicle," and of late "The Looker-On."

I beg to tender my best thanks to those Observers who have sent me returns from various stations over the county, and to all who have assisted me in the work.

I am, Gentlemen,

Your obedient Servant,

AUSTIN C. SAXBY,
F.R. MET. SOC.,
Borough Meteorologist.

February, 1908.

THE METEOROLOGY OF CHELTENHAM.

Abstract of Meteorological Observations taken by A. C. SAXBY, F.R., Met. Soc., Borough Meteorologist.

Latitude 51° 53′ 45″ N. Longitude 2° 3′ 21″ W. For particulars see next page.

1907. Month.	Corrected Mean of Barom. 9 a.m. & p.m.	AIR TEMPERATURES.							Relative Humidity at 9 a.m. and p.m.	Rainfall.		Bright Sunshine.
		Means of			Absolute Max. and Min.					Total fall	No. of Rainy Days.	
		9 a.m. & p.m.	Max.	Min.	Date.	Max.	Date.	Min.				
	INCHES.	°	°	°		°		°	%	In.:		HOURS
January	30·339	38·0	43·2	34·5	1, 2	51	25	17	86	1·09	10	65
February......	30·043	36·7	42·9	33·1	17	53	3	20	86	0·98	16	99
March	30·182	44·3	53·0	36·7	31	66	12	25	75	0·42	10	207
April	29·782	46·2	54·0	40·1	1, 24	67	18	31	79	3·14	14	160
May	29·860	52·3	59·2	46·3	11	72	22	36	76	2·62	17	146
June............	29·875	55·2	61·2	49·9	9	73	17	45	77	2·11	18	142
July	30·041	59·0	67·0	52·7	19	79	2	46	77	4·61	13	193
August...	30·001	59·3	66·1	51·6	28	71	24	41	78	1·99	15	176
September ...	30.131	56·8	66·0	49·5	25	77	23	41	83	0·49	6	162
October........	29·621	50·3	56·6	45·5	6	66	16	36	88	6·23	22	129
November ...	29·978	44·6	50·3	40 4	3	59	30	28	91	1·53	17	68
December.....	29·741	41·2	45·1	37·6	20	55	29	26	90	3·79	16	42
Totals	359·594	583·9	665·2	517·9		789		392	986	29	174	1589
Means	29·966	48·6	55·4	43·1		65		34	82	2·4	14	132
	1	2	3	4	5	6	7	8	9	10	11	12

NOTES ON THE TABLES.

(*See previous page.*)

Column 1 is the mean reading of the Barometer at 9 a.m. and 9 p.m., corrected for temperature—32° Fahrenheit—and reduced to mean sea level, the instrument being kept at 397, High Street, 206 feet above mean sea level.

Columns 3 to 8.—The maximum and minimum thermometers are read and set at 9 p.m. and entered to the same day. Instruments and screen are in Montpellier Gardens, 216 feet above mean sea level.

Column 9.—The relative humidity is calculated by dividing the elastic force of aqueous-vapour at the temperature of the dew-point for the month by that at the temperature of the air.

Column 10.—The rainfall is taken at 9 a.m. and the total entered to previous day. The rain gauge, placed within the enclosure at Montpellier Gardens, is of Snowdon pattern, 5 inch size, the rim being one foot above the ground.

Column 12.—The amount of bright sunshine is registered by an improved Campbell Stokes Recorder, which is mounted on the top of Pittville Pump Room. Prior to 1908 Jordan's Twin-cylinder Recorder was used.

WIND.

	%
From the North	0·020
,, North-East	0·054
,, East	0·101
,, South-East	0·150
,, South	0·090
,, South-West	0·223
,, West	0·164
,, North-West	0·065
There were Calms	0·133

COMPARATIVE TABLE OF THE METEOROLOGY OF CHELTENHAM FOR THE YEARS 1878-1907.

A division has this year been made on the returns comprising this table, keeping the years previous to 1903 apart from 1903-4,-5,-6 and -7. The latter make five complete years—a period long enough to take as an average—since the instruments were removed to Montpellier Gardens, this situation being more central and giving more accurate observations of Cheltenham than formerly.

This is especially marked in regard to Humidity of the town. The former position was on the extreme North side of Cheltenham, the screen then being within a short distance of the stream of water which at that part forms the boundary between the Borough and Prestbury, and was thus detrimental to the natural dryness of the atmosphere.

Year.	Atmospheric Pressure.	MEAN AIR TEMPERATURES				Humidity.		Rainfall	
		Max.	Min.	Mean	Range	9 a.m.	9 p.m.	Inches.	Days.
	INCHES.	°	°	°	°	%	%		
1878	29·913	56·1	41·5	48·8	14·6	83	88	33 18	176
1879	29·944	52·2	38·5	45·3	13·7	87	89	32·63	212
1880	29·971	55·8	40·5	48·1	15·3	85	88	33·72	177
1881	29·957	55·0	38·9	46·9	16·1	82	85	25·28	185
1882	29·914	55·9	41·5	48·7	14·4	81	86	37 92	214
1883	29·964	55·6	40·6	48·1	15·0	85	89	29·93	204
1884	29·978	56·8	41·9	49·3	14·9	84	89	24·04	190
1885	29·930	54·8	40·0	47·4	14·8	84	87	26·45	193
1886	29·912	55·0	40 6	47·8	14·4	83	86	32·55	193
1887	30·029	55·3	38·6	46·9	16·7	80	83	22·78	153
1888	29·959	53·8	40·1	46·9	13·7	82	84	28·85	195
1889	29·971	55·4	40·6	48·0	14·8	84	87	27·07	181
1890	29·959	55·6	40·1	47·8	15·5	84	88	20·09	191
1891	29·957	55·1	40·0	47·5	15·1	83	87	33·14	192
1892	29·948	54·6	38·7	46·6	15·9	82	85	19·45	175
1893	29·990	59·1	41·3	50·2	17·8	81	83	19·91	169
1894	29·963	56·2	41·6	48·9	14·6	83	87	29·12	194
1895	29·923	56·2	39·6	47·9	16·6	83	87	24·99	174
1896	30·030	57·0	41·4	49·2	15·6	83	86	21·54	185
1897	29·969	56·8	42·8	49·8	14·0	82	86	26·23	191
1898	30·009	58·2	42·5	50·3	15·7	82	85	24·23	173
1899	29·989	58·5	41·2	49·8	17.3	81	85	25·72	162
1900	29·928	57·3	41·1	49·2	16·2	80	84	28·44	203
1901	29·966	56·2	40·1	48·1	16·1	79	83	23·27	169
1902	29·906	56·9	42·4	49·6	14·5	84	87	22·53	176
Means	**29·959**	**55·9**	**40·6**	**48·2**	**15·3**	**82**	**86**	**26·92**	**185**
1903	29·883	55·8	43·0	49·4	12·8	82	84	35·75	215
1904	29·988	55·7	42·8	49·2	12·9	80	84	22·41	177
1905	30·005	55·7	42·9	49·3	12·8	79	83	23·79	165
1906	29·985	56·8	43·4	50·1	13·4	78	82	24·49	164
1907	29·966	55·4	43·1	49·2	12·3	80	85	29·0	174
Means	**29·965**	**55·9**	**43·0**	**49·4**	**12·8**	**80**	**84**	**27 09**	**179**

REMARKS UPON THE OBSERVATIONS OF THE YEAR.

A great feature of the year was the remarkably fine sunny period during the first four months, but the sun during the summer period was very much under the average, the total for the year being again well ahead of other comparable stations, with one exception—see page 90. On several days, during the latter half of March, 10 or 11 hours' sunshine was recorded daily.

In Humidity, Cheltenham holds the premier place but one in the the above list. I may here notice the greater dryness of the atmosphere since the instruments have been placed in Montpellier Gardens so much so that it is only fair the average from that period—1903—should be kept separately. See note at head of page.

The mean temperature was 1·2° above the average.

Rainfall during the latter half of the year was very treacherous throughout the country, the longest spell of dry weather during June, July, and August being 10 days in the middle of July, culminating in a thunderstorm and the greatest rainfall during the year. It was on July 21st that a fall of unusual severity was experienced, when practically 3 inches fell between 4 p.m. on the 20th and 7 p.m. on the 21st. At one period of the storm on the 21st one inch of rain fell in 40 minutes, but this was eclipsed at Bath on the same day when 2·6 inches fell in 3 hours.

During September very little rain fell, there being none from the 8th to 29th. The consecutive dry days otherwise came in twos or threes, giving the farmer no opportunity of getting harvesting done.

An unusual phenomena of darkness soon after noon was experienced on April the 27th, and is fully noted in the remarks for that month.

Snow was observed on 10 days only, hail on 4, thunder on 9, and fog on 8.

JANUARY.—The year opened with atmospheric pressure very light, rapidly increasing on the 3rd and 4th, causing the mercury to rise 1·32 of an inch in the two days, this rise was fairly well maintained until the 14th, when the pressure again increased, producing an abnormally high barometer—30·760 on the 18th—for the entire week. From the 21st the barometer was unsteady, falling again to 29·582 on the 29th, rising again the two following days. Range of pressure 1·730 of an inch.

The mean temperature of the month was slightly higher than the average. Rain, sleet, and snow was experienced the first few days of the year, a few unusally large flakes fell on the second.

Skating was freely indulged in on Friday and Saturday, the 25th and 26th, but was stopped by a sudden break up of the frost, thaw setting in from 9 p.m. Saturday night.

A strange rise of 10 degrees in temperature took place between three and four a.m. Saturday, 26th ; recording the maximum for that day, falling again 5° between five and eight a.m.

Rainfall very light, and would have established a record but for the half-inch registered New Year's Day.

Bright sunshine was very plentiful, their being only eight sunless days.

FEBRUARY.—Atmospheric pressure unusually erratic the whole of the month, the barometer being high for first five days, fell gradually to the 11th, and further again sharply on the 12th to its lowest point, recovering quickly more than an inch during the 13th, keeping up until the 18th, when another sharp fall took place on the 19th, rising slowly from 20th to 23rd, maintaining a high regular course to the end of the month. Range of pressure 1·501 inch.

The mean temperature was 2° lower than the average of past years, sharp frosts were experienced from the 22nd to 26th, and again on the last three days of the month.

Skating was indulged in on the 1st, 2nd, 3rd, and 4th.

A display of aurora borealis was noticed on Saturday night, the 9th.

A feature of the last week was the great gale which raged throughout Tuesday and Wednesday the 19th and 20th. The full force of the gale was not felt in Cheltenham, no damage to life or property being recorded. Atmospheric pressure decreased almost an inch between 9 a.m. and 9 p.m. Tuesday, the 19th, since when it has been constantly increasing. Some very low temperatures were recorded, notably that of Friday, the 18th, 16° on the grass.

MARCH.—Atmospheric pressure was great generally throughout the month, the range being confined to almost within one inch—1·029. A depression of the barometer occurred during the third week accompanied by high winds and rain.

The month was one which will be remembered for its pleasant spring-like weather. Bright sunshine was exceptionally abundant; during the third week over 60 hours being recorded, quite double the usual amount, and the fourth week was even greater, nearly 76 hours total, an average of about 11 hours per day.

Rainfall very light: less than half-an-inch.

APRIL. — Atmospheric pressure was undulating during the month, the Barometer keeping low until the third week, maintaining a high level to the end. Range of pressure 1·225 inch.

The mean temperature was just the average of past years, and the month closed without the extreme frosts which did so much harm to the early buds last year. Less than one degree of frost was the coldest registered in the screen, and that on one night only. Some hail was experienced on the 6th, 7th, and 10th. A heavy thunderstorm was experienced an the 10th doing some little damage. The hail which fell during the storm was considerable, and with the rain amounted to just over quarter of an inch.

A very acceptable rain fell steadily for some hours on the 12th, totalling nearly three quarters of an inch.

Rainfall is much behind the average of previous years.

Bright sunshine was registered on each day but two, the total for the month not being great.

An unusual phenomena was experienced on Saturday, the 27th, which passed without other noticeable feature to record, but the extreme darkness. About noon on that day the sky became overcast, and at 1.15 p.m. heavy black clouds were seen coming from a north-easterly direction. By 2 p.m. the sky was entirely obscured, and the streets were dark as night. No thunder was heard or lightning seen. Rain began to fall about 1.55, and continued steadily till 3 p.m., totalling ·15 inch. The darkness clearing about 2·30 in a southerly direction.

MAY.—Atmospheric pressure was great, but very steady the entire month, excepting for the first five days, when it was very unsettled, the Barometer reaching its lowest point on the 3rd. Range of pressure 1·013 inch.

The month commenced with hailstorms, a heavy one occurring on the 2nd, then followed an exceptionally pleasant week-end, with 13½ hours' bright sunshine on Saturday, the 4th. The week-end about the 11th was also ideal, the hottest temperature of the year being registered on that day —72° in the screen and 132° in the sun. A heavy thunderstorm broke over the town about 2 a.m. on the 14th, when over ¾ of an inch of rain was recorded. The other part of the month was cold and cheerless, although frost on the grass was only registered on four nights and did did no practical harm generally.

Mean temperature was up to the average of past years.

Rainfall much under the average so far as the year had gone.

Wind, generally easterly.

JUNE.—Not a month by any means like midsummer, cold and cheerless, with a low barometer, atmospheric pressure being very uniform throughout the highest reading, being taken on the 17th, and the lowest on the 1st, and range of pressure 0·735 inch.

On Saturday, the 1st, a little thunder was heard and light rain accompanied it. Bright sunshine was uniform during the second and fourth weeks, the average being 6 hours per day.

JULY.—The Barometer was fairly high at the commencement of the month, a depression taking place from the 2nd to the 6th, on the 8th it rose sharply to the 11th, slowly falling to the 18th, keeping low and steady to the 27th, rising slightly to the end. As is usual in thunderstorms, the Barometer betrayed no sign of the heavy storm of rain with thunder and lightning which settled over Cheltenham on Sunday and Monday, the 21st and 22nd.

Ideal mid-summer temperature and abundance of brilliant sunshine was experienced during the third week—the sunshine totalling 63 hours. Up to noon on Sunday, 21st, the sun shone brilliantly though oppressive, the sky became overcast, the wind rose, and at 3 p.m. rain threatened. Soon after 4 p.m. the thunder was accompanied by rain, which amounted to a thunderstorm of ordinary severity, when about one-third of an inch was registered.

In the small hours of Monday morning the lightning flashed and thunder pealed very heavily, rain falling in torrents from 5 to 7 a.m.; the rainfall amounted to 1·14 inch. Monday afternoon yet another heavier storm took place, the thunder and lightning being very alarming, the rain falling in sheets in the early part of the storm, one inch being registered within forty minutes of the start. The total fall during the 27 hours since 4 p.m. on Sunday being practically three inches. Several reports of damage by lightning were received, the damage to harvest crops being very severe.

The mean temperature of the month has been about the average, the only high readings being taken about the middle of the period; the last week was much cooler.

Apart from the heavy rainfall on the 21st and 22nd—nearly three inches—the total fall for the month has not been great, but of a very worrying character. Ten consecutive days were dry about the middle of the month. Hay crops were badly gathered, and owing to absence of bright sunshine corn did not ripen, making harvesting very late.

AUGUST.—Atmospheric pressure for the month has been normal and undulating, with no great extremes or sudden changes. Range of pressure 0·708 inches.

Temperature has been variable, warm nights were experienced from the 6th to the 18th, low readings were more numerous than usual.

Rainfall light, but of a worrying character, falling on half the days of the month, greatly interfering with agricultural work and adding anxiety to the holiday makers.

Bright sunshine was consequently proportionately scarce for the period of the year.

SEPTEMBER.—An unusual feature of the Barometer during September was the unusual rise which took place during the first week, starting much below normal it rose steadily until the 9th, taking a downward tendency for four days, maintaining a regular course to the 22nd, falling to the 27th, and keeping low to the end of the month. Range of pressure 1·080 inch.

The month of September took the opportunity of saving the Summer from disgrace. Temperature was most genial, the average being 1° higher than previous years.

Rainfall very light (but does not constitute a record, as the September of 1900 was lower), no rain having fallen for 23 consecutive days, gave an opportunity of well harvesting excellent crops of corn.

OCTOBER.—Atmospheric pressure very light and steady, entire absence of gales usually experienced at that period of the year. A very low and steady barometer, the highest being on the 5th and lowest on the 17th. Range of pressure 0·986 inch.

A month of rain and light storms with bright sunshine on each day but two, twelve of the days averaging over 7¾ hours daily.

Rain fell on each day but nine, the heavy storms taking place on the 6th, 9th, 10th, 16th and 20th accounting for more than half of the month's total.

NOVEMBER.—Atmospheric pressure was regular and even throughout the month, a prolonged and steady rise of Barometer taking place from the 26th to 30th, when the extremes for the month were recorded. Range of pressure 1·19 inch.

Mean temperature 3 degrees lower than the average for November in former years.

The amount of bright sunshine exceeds the average of past years.

DECEMBER.—The atmospheric pressure for the month was varied, the range covering 1·515 inch. The Barometer being low at commencement was very undulating until the 13th, falling sharply on the following day, then rising rapidly to the 17th, remaining high and more regular to the end of the year.

The mean temperature for the month was 1·3° higher than the average of past years. One low reading only was experienced on the grass: 12° of frost on the 29th. On five days only was frost registered in screen, generally less than 2°.

High winds with heavy rain and muggy atmosphere were prevalent the first half of the month. A little snow and sleet fell on the 12th and 13th, although not nearly to the extent reported from other parts of the country. Christmas week was very seasonable, being dry and frosty. Sleet was again seen on the 30th, but not sufficient to register.

The rainfall for the year was just 2·0 inches above the average.

COMPARATIVE TABLE OF HUMIDITY AND BRIGHT SUNSHINE REGISTERED AT INLAND STATIONS DURING THE YEAR 1907.

The lower the percentage of humidity the drier is the atmosphere.

HUMIDITY %	STATION.	ABOVE MEAN SEA LEVEL.	BRIGHT SUNSHINE HOURS.
86·0	Bath	84—Feet	Total—1674
87·5	Belvoir Castle ...	276 ,,	,, 1545
85·5	Berkhampsted ...	397 ,,	,, 1463
84·0	Birmingham ...	542 ,,	,, 1105
88·0	Buxton	995 ,,	,, —
—	Cambridge	88 ,,	,, 1484
82·0	**Cheltenham** ...	**216** ,,	,, **1589**
81·0	Coventry	309 ,,	,, 1355
—	Nottingham ...	88 ,,	,, 1250
84·0	Oxford	212 ,,	,, 1521
86·5	Sheffield	450 ,,	,, 1428

RAINFALL IN THE COUNTY OF GLOUCESTER IN 1907.

STATION.	OBSERVER.	RAIN-FALL.	RAINY DAYS.
		Inches.	
Witcombe	A. S. Helps	31·00	197
Cheltenham	A. C. Saxby	**29.00**	**174**
Bourton-on-the-Water ...	E. W. Kendall	33·18	176
Great Barrington	H. J. Barrett	31·62	175
R.A.C., Cirencester	P. G. Gundry	29·92	175
Berkeley	R. Shore	34·45	174
Over Court	R. C. C. Lippincott ...	34·43	234
Clifton...	R. F. Sturge	35·25	204